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BIODIVERSITY OFFSETS: LESSONS LEARNED FROM POLICY AND PRACTICE

SYNTHESIS REPORT

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1 EXECUTIVE SUMMARY

The uptake of biodiversity offsets as a mechanism for mitigating the residual impacts of development projects on species and ecosystems has rapidly increased over recent years, with a growing number of companies stating commitments to No Net Loss (NNL) or Net Positive Impact (NPI) and the emergence of national offset frameworks and roadmaps in new geographies. International best practice guidance has been developed and there is a growing body of scientific research. However, offset implementation faces a host of technical and implementation challenges, and more practical experience and lesson sharing is necessary for improving offset effectiveness.

To address this, Fauna & Flora International (FFI), with support from the Arcus Foundation, reviewed offset policy and practice experience, focusing on established offset schemes in Australia, South Africa and the United States, recent and emerging offset policy and frameworks, and site-level offset and compensation projects around the world. The study also drew lessons from FFI's experience in REDD+. Findings from the review were augmented through dialogue at a biodiversity offsets learning event in the UK, which brought together representatives from 22 countries and diverse sectors. This report summarises the findings of this work, the complex dimensions associated with offset policy and some of the barriers and enablers to effective offset planning and implementation.

The study highlights the influence of politics, changing political agendas and potential future land use priorities as a significant barrier to achieving conservation benefits from offsetting. It points to the importance of scientifically defensible biodiversity assessments and explicit conservation targets in giving biodiversity a voice in decision making. Findings emphasise the need for enforceable frameworks that ensure accountability through monitoring and reporting of offset outcomes. Yet even in the most established schemes, weak or absent compliance monitoring is contributing to offset failure. The complexities of defining impacts of development projects on biodiversity and ecosystem services are discussed, with a call for more holistic, integrated and landscape approaches. Despite deficiencies in the effectiveness of Environmental Impact Assessment (EIA) systems, the integration of offset planning in the EIA process is shown to benefit biodiversity by promoting more rigorous application of the mitigation hierarchy and greater emphasis on impact avoidance and minimisation. Involvement of offset experts is shown to have strengthened offset design and feasibility of offset plans, and the need to balance rigorous and defensible offset design with pragmatism is discussed.

The study stresses the need for better communication, coordination and collaboration among all parties (within and between government, companies and stakeholders) and calls for honesty, transparency, trust and equity to foster constructive dialogue and promote coordinated action to deliver multiple objectives. The importance of meaningful stakeholder engagement processes, of understanding the socio-cultural, political and ecological contexts in which development and offset projects are being proposed, and the need to strengthen understanding and incorporation of social and cultural considerations in offset planning and design are also emphasised. Tenure and management models that embrace the concept of biodiversity stewardship are encouraged and the study stresses the urgent need for capacity building across all sectors.

Findings point to the need for early establishment of financing vehicles that are simple to use, transparent and securely governed, while offset budgets need to be iterative and dependent on monitored biodiversity outcomes. At the very least, payment that fully finances the offset plan should be required before the impact occurs and, preferably, offsets should be implemented prior to impacts occurring. Finally, the report considers the evidence for offsets delivering measurable outcomes for biodiversity and presents some indications that, despite a host of political, social and implementation challenges, biodiversity offsets do have potential and can, in some cases, deliver benefits for biodiversity. Implications for the future development and implementation of offset policy in new geographies are discussed.

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2 INTRODUCTION

The uptake of biodiversity offsets¹ as a mechanism for mitigating the residual impacts of development projects on species and ecosystems has rapidly increased over recent years, with a growing number of companies stating commitments to No Net Loss (NNL) or Net Positive Impact (NPI) and national offset frameworks and policies emerging in countries including Colombia, Liberia, Mozambique and Mongolia. International guidance on best practice has been developed (e.g. BBOP 2009) and there is a growing body of scientific research particularly in relation to developing offset metrics (Miller *et al.* 2015), which can measure biodiversity losses and gains over time, as well as the ecological limits to offsetting (Maron *et al.* 2012).

However, it is widely recognised that offset implementation faces a host of technical and implementation challenges, and there is concern that offsets could undermine existing mechanisms for conserving biodiversity if developed in isolation from Environmental and Social Impact Assessment (ESIA) processes, emerging conservation financing mechanisms, socio-economic processes and other conservation approaches. Technical issues relating to measurements and metrics, exchange rules, limits to offsetability, additionality, multipliers and accounting for uncertainty and risk have been discussed elsewhere (Pilgrim & Ekstrom 2014). Meanwhile IUCN and ICMM (2012) stress the need for more practical experience and conclude that lessons learned from a community of practice will do more to further offset success than 10 years of theoretical debate.

To address the need for practical learning to guide the future development and implementation of biodiversity offsets, Fauna & Flora International (FFI), with support from the Arcus Foundation, led a study to review experience in offset policy and practice, focusing on three countries with established offset schemes (Australia, South Africa and the United States) alongside recent and emerging offset policy and frameworks (in Belize, Colombia, Liberia, Mongolia, Mozambique and the United Kingdom) and site-level offset and compensation projects around the world (including Brazil, Ghana, Guinea, Liberia, Madagascar, Myanmar and the United Kingdom). The study further explores opportunities to draw learning from other market-linked conservation strategies, focusing specifically on FFI's experience in REDD+. Findings from the review were explored and augmented through dialogue at FFI's biodiversity offsets learning event in July 2015 in Cambridge, UK, which brought together representatives from 22 countries and diverse sectors (Jenner 2015).

In this report we reflect on some of the complex dimensions associated with offset policy, the barriers and enablers to effective offset planning and implementation, and consider the evidence for offsets delivering measurable outcomes for biodiversity. Implications for the future development and implementation of offset policy in new geographies are discussed.

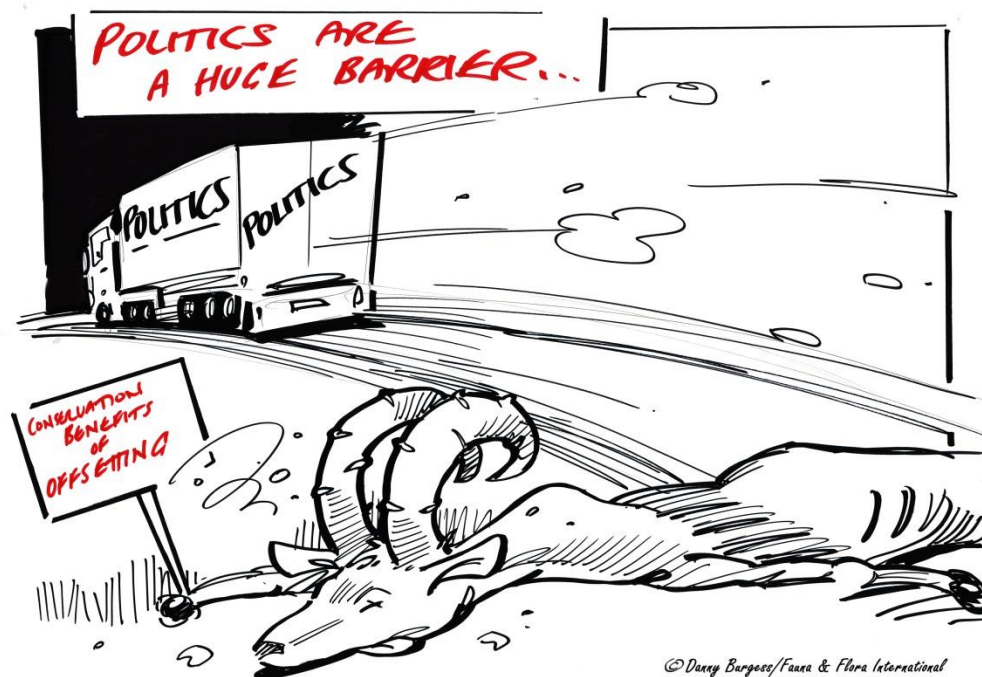
¹ Offsets are measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimised and / or rehabilitated or restored, in order to achieve no net loss or a net gain of biodiversity. Offsets can take the form of positive management interventions such as restoration of degraded habitat, arrested degradation or averted risk, protecting areas where there is imminent or projected loss of biodiversity.

3 BARRIERS AND ENABLERS FOR DELIVERING BIODIVERSITY OUTCOMES AND LESSONS LEARNED

This section summarises some of the complex issues associated with the development and implementation of offset policy, the barriers and enablers for delivering intended biodiversity outcomes, and lessons learned for offsets moving forward.

3.1 Politics and Policy

Politics can be a significant barrier to achieving conservation benefits from offsetting



Offset sites that are identified as first choice from a biodiversity perspective must also be deemed to be politically feasible. If a proposed offset site is on land where a government anticipates major development potential in future (e.g. mining, housing developments, etc.) the offset plan may well not be approved by regulating authorities, regardless of the potential biodiversity benefits. The result can be an offset plan that is a compromise (i.e. targeting lower priority areas), and therefore not the best possible option from a conservation perspective.

Within governments, conflicting agendas relating to the use of land and natural resources are creating conflicts between sectors with unaligned priorities, while power imbalances between ministries mean that biodiversity and ecosystems are often overlooked and unaccounted for in development planning and decision making. The turnover in government personnel exacerbates the situation, presenting challenges with regard to the implementation of previously endorsed policy. If offsets are to deliver intended benefits for biodiversity, it is essential that biodiversity has a voice in decision making relating to development planning.

In South Africa the case for biodiversity has been strengthened through the development of biodiversity sector plans and fine-scale systematic conservation plans, which highlight priority areas for protecting biodiversity, based on explicit conservation targets. This has helped to underpin integrated land use planning and decision making that takes biodiversity and ecological processes into account. There will inevitably be trade-offs and politics remains highly influential in

this regard, yet there is an excellent foundation on the basis of which trade-offs can be evaluated.

Political pressure on governments to support development – to drive economic growth, job creation, etc. – can further weaken the case for robust application of the mitigation hierarchy² and offsetting practices. This is true of the majority of countries, whether developed or developing, and it results in pressure for planning authorities and regulators to ‘make it easy’ for developers no matter what the environmental cost. In the United States, for example, political pressure exists on the US Fish and Wildlife Service (USFWS) to issue ‘non-jeopardy’ opinions³, and issuance of jeopardy opinions is extremely rare (e.g. Pittmann 2010). In some states, many of these non-jeopardy opinions still include no compensation or inadequate compensation for negative impacts (Kormos *et al.* 2015). The result is a compromise for biodiversity, based on political expediency instead of, or in addition to, sound science and ecological evidence. In countries where sub-surface land rights take precedence, the long-term sustainability of offset sites is particularly vulnerable to changing political contexts and the future prioritisation of resource exploitation over and above other land uses, including conservation.

Changing political agendas are resulting in changes to tenure and concession arrangements and in a consequent lack of certainty for offsets. In Ghana, for example, a company with a gold mining operation had worked for years to secure an offset project. The project was poised to be a good model for offsetting in practice. However, the offset project has recently been derailed as the responsible ministry, with whom the company had been consulting for years throughout the whole process, issued a permit for a bauxite mine in the area previously identified for the offset. This case further highlights the need for inter-ministerial cooperation and communication and the urgent need for data to be made available and accessible to all. Had there been knowledge of the mineral-related geological data that identified bauxite deposits or other incongruent potential future land uses, then the area would have been avoided as an option for offsets in the first place. This promising offset project has therefore failed, probably as a result of poor data availability, inadequate advice from consultants and experts and shifting political agendas. *Could this have been avoided if inter-ministerial cooperation had been better? If information and data had been made available? If there had been greater levels of collaboration and consultation? If different questions had been asked throughout the process of offsets development and design? Or is the dynamic nature of land use and development prohibitive in certain socio-political contexts? If so, what are the alternative drivers?*

Offsets can be used as a political negotiation tactic by planning authorities and proponents, with the result that the offset requirement attached to a licence is not necessarily the best outcome for biodiversity (or even sufficient to compensate for impacts), but rather the best that could be negotiated. This is a particular problem where there is no overarching offsetting policy or regulations to provide a final word, as in South Africa and the United Kingdom, but has also been

² The mitigation hierarchy is defined as: 1) Avoidance: measures taken to avoid creating impacts from the outset; 2) 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; Rehabilitation/restoration: measures taken to rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and/ or minimised; and as a ‘last resort’ 4) Offset: measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimised and / or rehabilitated or restored, in order to achieve no net loss or a net gain of biodiversity.

³ ‘Jeopardy’ occurs when an action is reasonably expected, directly or indirectly, to diminish a species’ numbers, reproduction, or distribution so that the likelihood of survival and recovery in the wild is appreciably reduced” (<http://www.fws.gov/midwest/Endangered/section7/section7.html>). If it is determined that an action is not likely to “jeopardize the continued existence of any listed species” or “result in the destruction or adverse modification of designated critical habitat,” the USFWS will provide the federal agency with what is known as a “non-jeopardy” Biological Opinion (Kormos *et al.* 2015).

cited as an issue in countries with apparently robust legislation. In Australia, for example, there are cases in which offset plans have been developed and negotiated with stakeholders independently from delivery of the project EIA (e.g. Western Basin Dredging Project, Gladstone, Australia). In such cases the offset plan is structured according to regulatory negotiations rather than being informed by the scope and scale of residual impacts. Post-project approval, i.e. 'offset by negotiation', also continues to be an issue in some cases in the South African system and has fuelled calls for greater transparency (see Jenner & Balmforth 2015 for further discussion).

Legislative / policy uncertainty risks weakening commitment to robust offsetting practice

Legislative uncertainty can further compromise commitment, on the part of both developer and regulator, to ensuring the rigorous application of the mitigation hierarchy and development of offsets that are appropriate for addressing residual impacts on biodiversity. This is particularly true where there is scope to circumvent obligations and/or to delay action or payment in anticipation of weakening regulations or gaps in compliance monitoring. In Australia, the Queensland Government introduced, on average, one new offset policy per year during the 2000s, thereby constantly shifting the goal posts for developers (Evans 2015). In New South Wales, a new mining policy, introduced in September 2015, gives equal weight to economic, social and environmental considerations when approving new mines. Securing an offset site is a long, complex and expensive process. When a policy is changed or re-interpreted during this process, large investments tied to an offset project may be at risk. This uncertainty also serves to weaken the commitment of developers and regulators to robust offset practice, with real impacts for the biodiversity outcomes of offset policy.

The importance of establishing national policy

The lack of an overarching national offset policy tends to result in the development of inconsistent approaches to offsetting at local levels, without a set of common rules. In South Africa, attempts to introduce a national biodiversity offsetting policy framework have been ongoing for at least the past six years. In the meantime, a number of South Africa's provincial governments have developed their own policy frameworks, practical methodologies and guidance documents regarding when and how offsetting is to be implemented in their jurisdictions. At provincial level, therefore, the development and application of draft guidelines has enabled 'learning through doing', with methods and draft policies that are tailored to local ecological, social and political realities. However, the absence of clear policy nationally has led to inconsistency in the use of biodiversity offsets and left offset requirements as conditions of environmental authorisation vulnerable to legal challenge. Similarly in the United Kingdom, the lack of a national offset framework has led to an ad hoc approach to offset finance structures. A national policy on offsets would introduce some predictability to offset requirements and thus is likely to generate more predictable demand for offset sites and could potentially open up funding mechanisms through the creation of appropriate financial structures.

Apply caution when drawing lessons from policy development in other countries

The best way to design a policy framework and supporting regulations varies from country to country and it may be impossible to transfer lessons learnt regarding details of offset policy development from one country to another. Caution is therefore needed. In the UK, for example, a law prevents conversion of grasslands that have remained in their natural state for more than 25 years. This means that a 25-year protection agreement on grassland offsets in the UK is akin to protection in perpetuity. In other countries this would not be the case. In South Africa, it has been possible to create provincial policy that is based on clear, scientifically verified conservation goals

for individual ecotypes because South Africa has undertaken long-term, systematic and comprehensive research into the type and status of its species and habitats (DEA-SANBI 2012). In other countries with less information about ecosystem characteristics, health and trends, the goal of an offsetting policy in terms of protection or enhancement of individual ecosystems might be much less clear and the policy itself would have to be structured very differently.

Securing an area for biodiversity in perpetuity

Securing an area for biodiversity in perpetuity presents a significant barrier in securing offsets that will deliver long-term biodiversity outcomes.

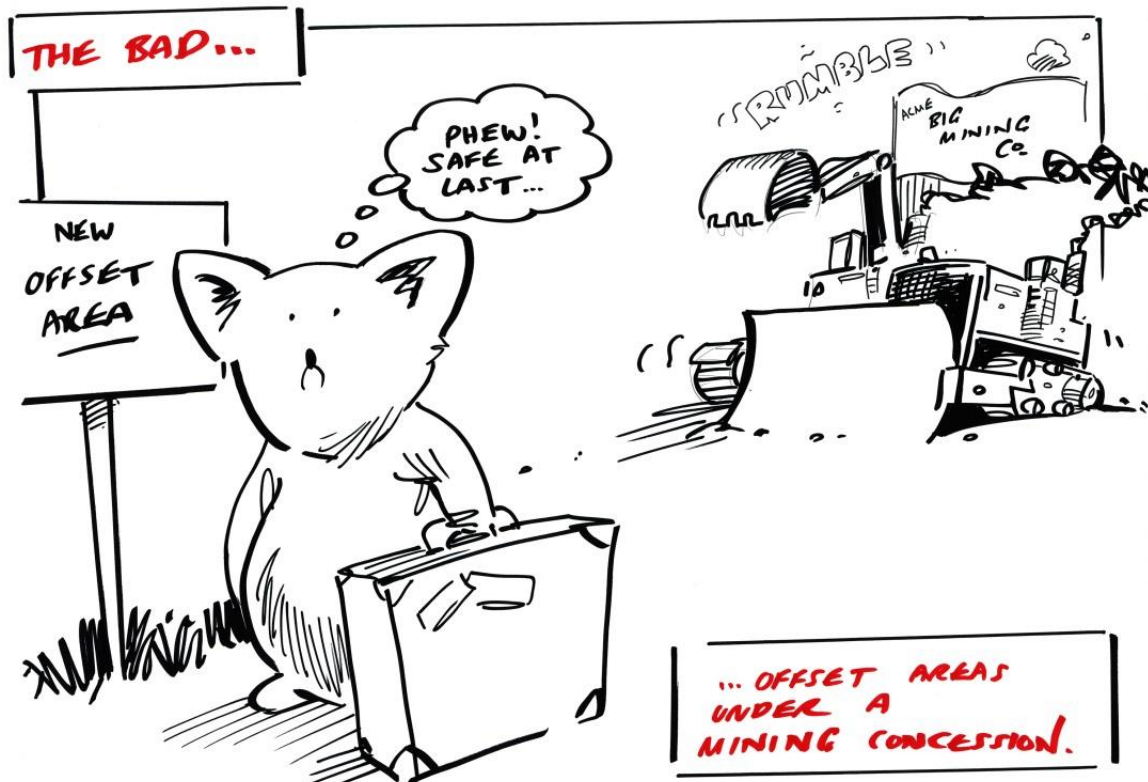
In the United States the conservation banking⁴ system relies on conservation easements to secure land in perpetuity. For a conservation easement to remain legally valid it must be properly recorded with the appropriate registry of deeds and re-recorded periodically where required by state legislation. Notably, an easement is a property right and as such the government can take someone's property right for a public purpose, so long as it pays compensation. In such a case, it may 'extinguish any conservation easements'. This has transpired in Florida in the context of a wetland mitigation bank, where the state planned to build a parkway through a portion of the Wekiva River Mitigation Bank. Whilst a compensation agreement was reached, these events underscore the fact that the government can choose to acquire and invalidate a conservation easement (Gardner 2008 and references therein). Furthermore, it is possible to invoke a 'doctrine of changed circumstances' that can modify long-term arrangements, including easements. For example, if the sole purpose of an easement is to assist with the survival of a species and that species becomes locally extinct, then the landowner could argue for the easement to be terminated. Conservation easements should therefore be drafted for multiple purposes (Gardner 2008).

In Australia, a Senate Inquiry⁵ into offset appropriateness and effectiveness highlighted that in many jurisdictions it is difficult to find secure legal mechanisms for the protection of offset areas in perpetuity on private land. In the Australian context, the main forms of legal protection used by the Environment Protection and Biodiversity Conservation (EPBC) Act and State offset policy, namely conservation agreements or covenants, were often considered to be unenforceable. Nature Refuges such as Bimblebox in Queensland have been subject to mining development. The vulnerability of offset areas in Australia has been highlighted in a number of recent controversial cases in which ecological outcomes have been threatened by further development (and additional offset) in areas previously planned as an offset. For example, the proposed expansion of a coal mine in the Hunter Valley of New South Wales threatens an area of unique Warkworth Sands Woodland ecosystem and includes the proposed development of an area that had previously been committed as an offset to address residual impacts of an earlier expansion

⁴ Conservation banks in the U.S. are defined by the U.S. Fish & Wildlife Service as "*permanently protected lands that contain natural resource values, which are conserved and permanently managed for species that are endangered, threatened, candidates for listing, or are otherwise species-at-risk*". In exchange for permanently protecting the land and managing it for these species, the U.S. Fish and Wildlife Service approves a specified number of habitat or species credits that bank owners may sell.

⁵ Following public concern over several high-profile cases and inadequate biodiversity offset requirements, on 5 March 2014, the Senate referred the matter of 'The history, appropriateness and effectiveness of the use of environmental offsets in federal environmental approvals in Australia' to the Senate Environment and Communications References Committee for inquiry and report. This process saw an independent reviewer assess the appropriateness and effectiveness of the use of environmental offsets under the EPBC Act. The full report was made available in June 2014 and can be accessed: http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Environmental_Offsets/Report/index

of the same mining project⁶. The proposed expansion into a designated offsets area is contrary to its licence agreement and against local community consultation. This has caused many years of legal wrangling between the communities and the company, with the primary political case being the putative economic benefits of an extended mine, which some argue have been over-inflated. A final decision is expected in late 2015 and there are some indications that the expansion project may go ahead⁷ despite well-documented environmental impacts, community concerns and the company's demonstrated failure to uphold its existing offset commitment.



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In Mongolia, where a national offset policy has recently been developed, and the government is in the process of recognising that offsets will require areas to be locked up without further mining allowed (and possibly existing licences to be cancelled), there may be some way to go before this becomes broadly accepted and integrated into government systems. It is worth noting that the only legal basis for refusing mining applications was in protected areas or 'special use areas' within land use plans. There are therefore inherent challenges in securing land for offsets when the government is balancing the opportunity to obtain major revenues from mining or oil & gas. Companies may, under current frameworks, have to be prepared to compensate lost revenues when offsetting and perhaps acknowledge avoidance areas.

Offset policy is being developed or planned in countries where the land situation is complex and where tenure relating to land and natural resources is both unclear and insecure for many. The situation is exacerbated in the absence of integrated land use planning and a lack of coordination between ministries and between permitting agencies such that commercial concessions granting

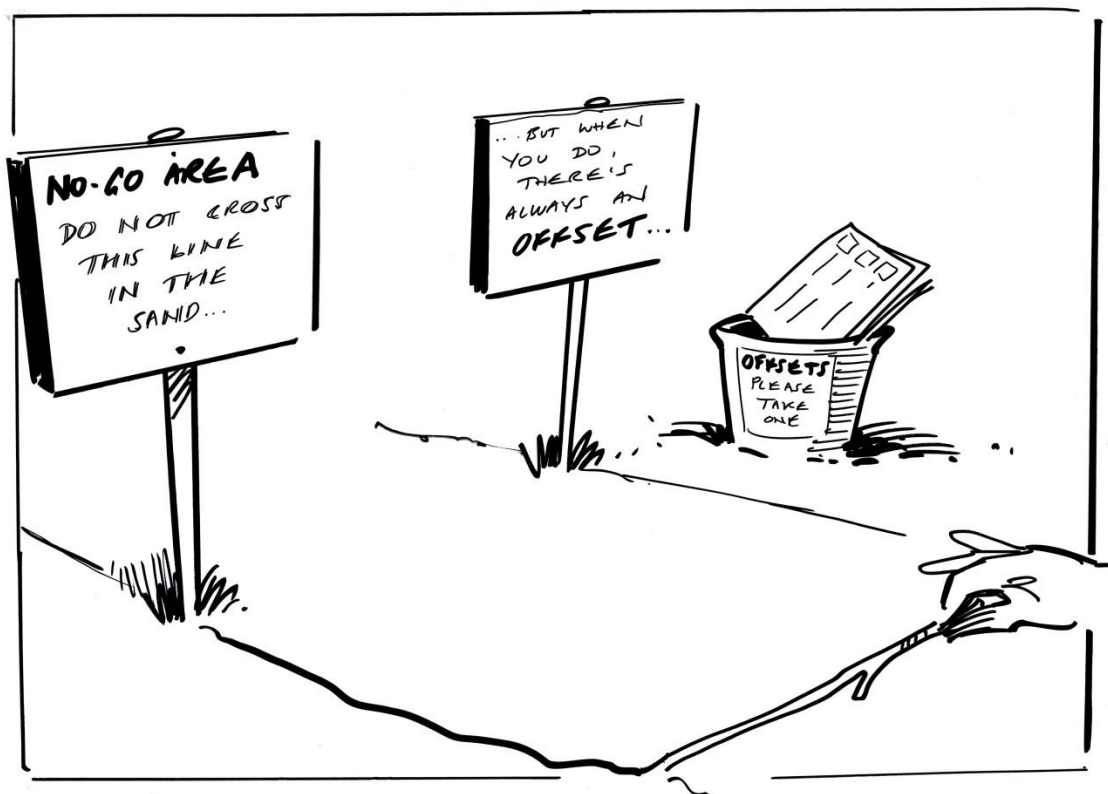
⁶ Media coverage for the controversial project expansion plans can be found at: <https://independentaustralia.net/environment/environment-display/alleged-partiality-in-nsw-govt-meetings-with-rio-tinto-over-warkworth-coal-mine-continuation.6955>

⁷ E.g. <http://www.smh.com.au/environment/rio-tinto-wins-planning-nod-for-controversial-warkworth-coal-mine-20150304-13vonn.html>

access to land and natural resources, above and below ground, often overlap. Understanding tenure will be essential if offset areas are to be secured through appropriate mechanisms and managed effectively for biodiversity and ecosystems over the long term. In light of the vulnerability of conservation agreements to changing political agendas and priorities, building support for any offset project among all stakeholders will be paramount.

Where no-go areas do not have adequate protection, and development is approved, compensation for biodiversity loss may be the only remaining option

The delineation of and adherence to 'no-go' areas for development, where biodiversity is seen to be irreplaceable, is critical for biodiversity conservation. Yet even the highest orders of protection are sometimes not enough to secure an area for biodiversity in perpetuity – especially in countries where sub-surface land rights take precedence. The controversial de-reservation of a part of the Selous Game Reserve World Heritage Site to make way for a uranium mine project is a case in point, as is the Nimba World Heritage Site in Guinea where a 'keyhole' was excised from the protected area to enable access to the iron ore resources currently under exploration by SMFG⁸ (Société des Mines de Fer de Guinée). Moreover, sites identified as 'no-go' areas (e.g. in biodiversity plans) often have no legal protection as yet and, in the case of large public infrastructure projects and what are seen to be 'strategic' resources for exploitation, development may be approved. In these situations, compensation for biodiversity loss may well be the only remaining option to mitigate residual negative impacts, after all efforts to avoid and minimise development impacts have been made.



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⁸ http://www.mtech.edu/mwtp/conference/2013_presentations/Sonya%20Rosenthal.pdf

Considerations for offsets moving forward: Politics and Policy

- For countries considering development of offset policy, thorough understanding of the policy, legislative, institutional, socio-economic and cultural context, the knowledge base on biodiversity and ecosystems, as well as national conservation and development objectives and plans, is essential and must underpin all aspects of policy design. Caution should be exercised when drawing lessons from the development of offset policy in other countries.
- Scientifically defensible biodiversity data and explicit conservation targets can strengthen the voice of biodiversity in decision making and underpin more integrated land use planning. There are likely to be trade-offs and compromises but where they are based on defensible evidence there is scope for greater transparency in decision making. Clear guidance is needed to support appropriate and consistent use and interpretation of landscape level land use and conservation plans, and limits to development must be defined and applied.
- It is important that national legislation is stable and consistent, and provides strength to sub-national schemes. Establishing a national guiding framework on offsets is also important, but it is equally vital to retain enough flexibility to allow the details of offset planning and implementation to be tailored to local contexts.
- Establishing secure legal mechanisms to enable protection of offset areas and ensuring longevity in implementation is essential. In some countries, this may require investment in processes to clarify and secure tenure rights. Commitment to strengthening inter-ministerial coordination, improving alignment and coherence in the determination and delivery of national conservation and development objectives, and improving integrated land use planning across all sectors will be paramount.
- Legal frameworks should enable the institutionalisation of financing vehicles for offsets as a conservation mechanism and facilitate the movement of financing or payment into funds allocated to conservation. This needs to include clear pathways for beneficiaries and local community involvement.
- It is important to establish and/or strengthen policy requiring the consultation and consent processes that include local stakeholders in decision making and in the delivery of offsets.
- Clarity is needed within legal frameworks relating to land use and the protection of sites with sensitive biodiversity and ecosystem services, in order to maintain the biodiversity and ecosystem services values of those areas (i.e. the allocation of no-go or avoidance areas).
- Policy should underpin appropriate and enabling land tenure that ensures long-term protection under a variety of mechanisms (including community use and stewardship, private and state-owned land) and reflects the appropriate land uses in particular areas.
- Companies need to respect the biodiversity, ecosystem services and cultural sensitivities of areas allocated for avoidance.
- Lenders need to ensure that the application of their loan conditions includes avoidance of Critical Habitat and that this is clear in the guidance.

3.2 Compliance monitoring and enforcement

Severe weaknesses in compliance monitoring and enforcement

The need for greater regulatory clarity on technical and practical issues relating to offsets has been highlighted (e.g. Pilgrim & Ekstrom 2014 and references therein). However, ensuring adherence to regulation is arguably a more urgent need owing to poor and inconsistent implementation. Even in the most established offset schemes in the United States and Australia, weaknesses in compliance monitoring and enforcement are contributing to poor and/or inconsistent implementation of offset plans. In all country assessments compliance monitoring was generally found to be inadequate or lacking. A compliance monitoring review for South Australia, for example, reported significant non-compliance by providers and a lack of compliance monitoring by authorities (Fisher *et al.* 2010) and the Australian Auditor General (2014) found poor compliance effort in the administration of the EPBC scheme⁹. This finding is consistent with other assessments of offset programmes, particularly mitigation banking (see Pilgrim & Ekstrom 2014 and references therein). Weaknesses in monitoring and enforcement are reducing incentives for compliance and in turn the likelihood of offsets delivering biodiversity conservation objectives.

Critical barriers to improving compliance monitoring

Poor compliance monitoring and enforcement has been attributed to a range of factors. In many cases these reflect generic issues of resourcing, capacity and data management that underlie weaknesses in compliance monitoring and enforcement of environmental law more broadly. Inadequate resourcing presents a significant challenge for government departments and agencies and was identified as a critical barrier to improving compliance monitoring, raising questions over the long-term management, monitoring and enforcement of offsets where responsibility for monitoring sits with government.

In South Africa two issues have compounded the problem. Firstly, it can be difficult for public bodies to receive funds from external sources to cover staff costs, meaning that in many cases, even when monitoring costs had been budgeted for, they could not be used to fund offset management and monitoring by government agencies. This is increasingly being addressed through service providers contracted to undertake independent auditing, thereby reducing the burden on government agencies. A similar model is employed in the United States. Secondly, compliance monitoring and enforcement at national level predominantly responds to complaints about non-compliance rather than being proactive in investigating compliance. There is thus little chance that offset non-compliance will register within this system, thereby reducing the incentive for compliance. The situation is likely to be exacerbated in areas where other drivers for compliance and good practice (e.g. the social licence to operate) are weak and/or where penalties for non-compliance are low and/or unenforced.

Biodiversity expertise and pragmatic implementation insight and experience within the authorities responsible for approving proposed offset plans is essential in the development of practical, enforceable conditions on licences in relation to offsetting and compliance monitoring. In reality, however, there are yawning gaps in the capacity and competency of the authorities responsible for issuing permits, right across the geographical spectrum. In the United Kingdom, for example,

⁹ The Auditor General. Audit Report No. 43. 2013-2014. *Managing compliance with Environment Protection and Biodiversity Conservation Act 1999 Conditions of Approval*. Department of Environment. Performance Report. Australian National Audit Office. Commonwealth of Australia 2014.

diminished ecological know-how in Local Planning Authorities (LPAs) is reported to be reducing efficiency and slowing down the planning process. With 75% of planners reporting no more than a basic understanding of the mitigation hierarchy (Oxford 2013), the capacity and competence gap in LPAs is set to be exacerbated if biodiversity offsetting, with associated metric calculations, becomes more widely adopted.

Issues relating to record keeping and data management and access continue to hamper efforts to evaluate the impact of offset schemes for biodiversity in the United States and around the world. Information is distributed across various agencies and regional offices, in paper and electronic formats, with no requirement for delegated authorities to maintain data or forward to a centralised agency/system, if it even exists. When documents are available, they are not necessarily available to the public.

However, there are some exceptions. Conservation banks in the United States are generally well monitored and tracked, with information and reports made available through the 'Regulatory In lieu fee and Bank Information Tracking System' (RIBITS)¹⁰ - a clearing house of information on conservation banking programmes across the country. This database provides information on location, size, owner of each conservation bank, as well as the number of credits sold and a shape file for most conservation banks (Kormos *et al.* 2015).

Additional barriers to improving compliance and compliance monitoring cited include:

- Unclear delegation of authority: until recently, biodiversity offsets in the US have generally not resulted in NNL of listed species or habitat over time. One of the main reasons the US has not achieved NNL for many species is that historically the USFWS has not always sought compensation for impacts, partly because it was not clear whether it had the authority to do so. As a result, compensation for listed species has varied over time and from state to state (Kormos *et al.* 2015).
- Tensions between the drivers for compliance and project financing (see below).
- Failings in institutional frameworks are a major cause of poor outcomes for biodiversity from offsetting. There have been cases in which licences were issued before the offset agreement (which should have been a condition on the licence) had been finalised and signed, simply because the two processes involved different parts of government, between which there was insufficient communication and coordination (see also Jenner & Balmforth 2015).
- Lack of transparency in addressing issues of non-compliance and inadequate penalties for non-compliance (e.g. Case Study 1 in Jenner & Balmforth 2015). In a number of cases operators have failed to adhere to conditions attached to their environmental authorisations and yet have faced no repercussions at all from the respective authorities.

Data needed to verify biodiversity gains are extremely limited

Inadequate compliance monitoring, a focus on monitoring of input data (i.e. management actions and inputs) rather than biodiversity outcomes, and the failure to establish the systems needed to collect the data required to measure biodiversity outcomes have resulted in a lack of data by which to verify that offsets are delivering biodiversity gains. In the United States the result is that for most species, we cannot even know whether there has been NNL or a net gain in individuals or habitat because record keeping has been incredibly poor. The one exception in the United

¹⁰ https://ribits.usace.army.mil/ribits_apex/f?p=107:158:11542525023458::NO:RP

States is the conservation banking system, as discussed above (also see *Species offsets deliver measurable gains in habitat*, below), and is attributed to the fact that i) there are fewer banks compared to other types of offset schemes in the United States, and ii) the USFWS has had much stricter regulations for setting up conservation banks compared to other types of offset projects, requiring a Conservation Banking Agreement, a Conservation Easement to be placed on the bank site to protect the property's conservation value in perpetuity, a Management Plan for the bank and a non-wasting endowment fund (Kormos *et al.* 2015).

Tensions between the drivers of good practice and project financing

Companies are primarily driven by regulated compliance objectives, which dictate their licences to operate. Going beyond compliance is generally motivated by social or reputational issues relating to material risk and the business case drivers for this need to be strong. Acquiring the social licence to operate is conditional on good practice and good relationship with stakeholders: This is generally incorporated under company corporate social responsibility and external affairs, but is increasingly being recognised as a fundamental operational requirement. Commitments to good practice that reflect the socio-economic and environmental complexity of operational contexts is often reflected in company policies and standards that require adherence to recommended practices. Very often, these policies and standards are equal to or higher than the countries of operation. More than 38 companies have now committed to NNL or NPI objectives across all operations, and many more have committed to this at a project level when operating in countries with weak or absent legislation and/or governance.

An additional driver of good practice is expressed in the safeguards and loan conditions of the investor community and multilateral lender banks. The role of lender banks, such as the International Finance Corporation and Equator Banks, in promoting good practice through their Performance Standards, has been widely recognised and can also be a particularly important driver for good practice in mitigation planning in countries where relevant national legislation is weak or lacking.



However, where the drivers for good practice and drivers for project finance are inconsistent, this can also create tensions and ultimately lead to compromises. For example, custodians of environmental safeguards within financing institutions may experience pressure to expedite delivery on environmental information, sometimes compromising exhaustiveness of study inputs for decision making, or loosening socio-environmental risk in favour of fiscal drivers and the need to expedite investment decision making.

In some cases, national guidance may contradict or conflict with corporate best practice or lender guidance. In Mongolia, the current multipliers endorsed in national offset policy do not align with the International Finance Corporation's Performance Standard 6 requirements and may result in many companies not fully compensating for their impacts. The consequences may be continued loss of biodiversity and failure to achieve no net loss of biodiversity in the landscape.

The role of lender banks in compliance monitoring is crucial, yet lender banks have minimal leverage over companies once a loan is repaid. Notably the involvement of multiple stakeholders, including governments, can mean that the lender bank has limited leverage to enforce offset implementation, since it may have no contract with the stakeholder responsible for managing an offset project and therefore no leverage if they fail to honour this commitment. This relates to the timing of implementation of offsets, and the commitment from the outset of finance to ensure that the offsets are implemented according to the biodiversity objectives set within the agreements of the loans. Companies need to recognise that a strong reputation for managing biodiversity and offsets effectively, rather than just *'talking a good game'*, can significantly increase the willingness of lenders to finance future projects, and that lenders consider previous performance of companies when making investment decisions (Holland, Jenner & Knight 2015).

Considerations for offsets moving forward: Compliance monitoring and enforcement

- There is a need for enforceable frameworks that ensure *accountability* through monitoring and reporting of offset outcomes, enforcement of licensing conditions and appropriate penalties for non-compliance.
- Establishing and/or strengthening regulatory clarity relating to the application of the mitigation hierarchy and offsets may be required. However, it is important to provide a pragmatic response to immediate needs for improved and consistent implementation of, and adherence to, existing regulation. This will require understanding of existing strengths and weaknesses and the barriers in any given country to improving compliance monitoring by authorities and the opportunities and constraints for addressing these.
- Design and establishment of monitoring and data management systems that are appropriate to the national context and are supported by necessary resourcing and capacity building processes needs to be an integral component in the development of any national offset policy. Without this, monitoring the effectiveness of the system for delivering biodiversity outcomes will continue to be ineffectual.
- In any offset scheme the number of projects requiring monitoring will increase each and every year. A well-designed system is required at the outset to cope with increased monitoring needs in the future.
- Compliance monitoring by lender banks must be subject to third-party review and weaknesses addressed as a matter of priority. In countries where regulation is weak or lacking, the lender banks and the companies they finance play a crucial role in governing practice. Lenders must be accountable for the application of their standards, particularly when these are conditional on loans, and ensure that operations do not default on implementation best practice. Derogations on standards should be transparent and acknowledged.
- Capacity and training to undertake compliance monitoring of biodiversity offsets is fundamental. Capacity building is required across all sectors.
- Ultimately, a biodiversity offsets standard or No Net Loss / Net Gain standard with accreditation and verification through the audited application of indicators, criteria and principles should be applied.

3.3 Mitigation planning for biodiversity and ecosystems

Avoidance and minimisation before consideration of offsets



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Offsetting is the final step in the mitigation hierarchy and may not be required if impacts can first be avoided, reduced and/or biodiversity and ecosystem services rehabilitated or restored. A proliferation in guidance material and international focus on biodiversity offsetting, whilst leading to crucial progress in the field, has perhaps overshadowed and outweighed developments and emphasis on the early steps in the mitigation hierarchy. The imbalance has been recognised and is starting to be addressed with new guidance material and case studies being produced on the application of the mitigation hierarchy and improving avoidance measures (e.g. CSBI 2015; Birdlife *et al.* 2015; Phalan *et al.* in prep.)

Similarly, in Australia, the mitigation hierarchy framework is required within all offset policy and is generally well accepted. Yet much of the guidance material and tools developed focus on the final stage, offsets. The Senate Inquiry (2014) recommended that *'prior to approval being given for actions under the EPBC Act 1999, the mitigation hierarchy be rigorously implemented, with a greater emphasis on avoidance and mitigation'*.

Importantly, the fact that in some cases offsets may not be appropriate has been highlighted through a submission to the senate inquiry that stated: *'It should be made much more explicit that many impacts cannot be offset, and then the choice is between development and associated biodiversity loss, or the alternative. We cannot always have our cake and eat it, and it is misleading to imply otherwise'*.

Rigorous application of the mitigation hierarchy, including the design of appropriate and feasible offsets, is undermined by ineffective Environmental Impact Assessment processes

Environmental impact assessment (EIA) or Environmental and Social Impact Assessment (ESIA) is today a global tool for ensuring that environmental, and social in the case of ESIA, concerns are integrated into the development project or programme planning process. Much has been written on the mixed effectiveness of EIA, with many proving ineffective in mitigating the impacts of development projects on the environment. Numerous reasons are cited, including corruption and mismanagement of the process, low and inconsistent quality of the EIA and a lack of transparency on how to mitigate and monitor the environmental impact of projects, the inadequacy of compliance, monitoring and enforcement, gaps in capacity and competency, inadequate stakeholder consultation processes and challenges in the communication of EIA results to stakeholders and decision makers.

EIA is traditionally considered an exercise to identify potential impacts of a project, and which is intended to be completed early in its development. However, it can also occur after a planning application has been made, or even after an appeal. Early EIA screening decisions can be important for clients, in terms of financial planning and the project programme, but there is growing evidence that delaying the submission of an EIA or ESIA results in loss of avoidance opportunities and unmitigated impacts. In an attempt to address this issue, the Cross Sectoral Biodiversity Initiative (CSBI) has developed a Timeline Tool in response to a misalignment of key financing and ESIA activities. During the various stages of project development (particularly in extractive projects), decisions are made about project site selection, design concepts, facility locations, technology choices and impact mitigation measures. These decisions aim to minimise project risks and uncertainties and require input from both the project design perspective and the environmental management (biodiversity) perspective. At the beginning of the project there will be uncertainty about both the project design and the environment. This uncertainty is reduced through efforts to increase knowledge of the environment, which then informs project-related location and design decisions. However, the elimination of all risk and uncertainty before construction begins is generally not possible.

In many countries where offsets are emerging, the EIA determines whether or not an offset requirement is triggered by the impacts of a development project proposal, the scale of that offset requirement, and the conditions on which the development project is to be permitted, including (in some cases) those associated with any offset plan. Recent national biodiversity offset frameworks and roadmaps make clear reference to a country's EIA system as the regulatory basis for focusing mitigation planning on the mitigation hierarchy and compensation of residual impacts (e.g. Belize, Colombia, Liberia, Mozambique and Peru). Yet in many countries where offsets are emerging, EIA laws and regulation are weak and may not make explicit reference to offsets. Emerging frameworks and roadmaps make clear statements pertaining to the need for No Net Loss or Net Gain objectives to enable offsets and require compensation where residual impacts remain. What is often missing is explicit statement that offsets are a last resort, are not always appropriate, and should not be an option without full application of the mitigation hierarchy. There is also a general lack of explanation within these frameworks about how to get from theory to practice. Addressing these weaknesses will be important if biodiversity offsets are to be appropriately embedded within development planning and approval processes and within the context of the mitigation hierarchy.

Short timelines in the EIA process force premature consideration of offsets

It is crucial that offsets are only seen as an option after avoidance and minimisation have been addressed. Yet in an effort to streamline permissions processes for project development tighter time limits on the EIA process could force the earlier consideration of offsets, e.g. South Africa's 2014 EIA Regulations under the National Environmental Management Act (NEMA). This presents a very real risk of 'offsets as a first mitigation option', designing offsets before the formal start of the EIA process (i.e. with no authority control or input) and using offsets to leverage authorisation. As noted above, the integration of offset planning into the EIA process is important, but timelines must allow for the rigorous application of the mitigation hierarchy and the design of offsets, where applicable and as a last resort, to address residual impacts for biodiversity and ecosystems.

Integration of biodiversity offset design within the EIA process can benefit biodiversity

The integration of biodiversity offset design into the EIA process can offer greater potential for impact avoidance through re-design, because it makes the benefits of avoidance and minimisation (i.e., reduced offsets requirements) more immediately visible to the proponent. This tends to make avoidance a more tangibly advantageous strategy to the developer. In South Africa, the competent authority can require evidence of well-planned offsets within the EIA, before it is accepted, and those offset plans can then be mandated as conditions within the approval to develop. Consequently, there are a number of cases where offset plans have been required by the competent authority, either as part of the environmental authorisation process or as a licensing condition. Where EIA and offset planning processes have overlapped it has been possible for experts to demonstrate the business case, through proper application of the mitigation hierarchy, for avoiding the need for an offset altogether or reducing the offset requirement through avoidance and minimisation of impacts.

Taking into account indirect and cumulative impacts in determining offset requirements

The area of influence of a project is not only the site footprint. Invariably, projects underestimate the area of influence, neglecting indirect (secondary) impacts and impacts relating to the disruption of ecosystem services on which local stakeholders are dependent. The appropriate and accurate determination of the area of influence underpins subsequent calculations of residual impact and, in turn, any offset requirement. Whilst guidance is available to help identify the area of influence (see below), this aspect of project development and mitigation planning requires improvement.

The predicted area of influence presented in any EIA needs to include all direct, indirect and cumulative impacts for all project activities over the entire life of the project (exploration, development, operation and decommissioning). In accordance with International Finance Corporation (IFC) best practice guidelines, Performance Standard (PS) 1 details the requirements for identifying the area of influence (IFC 2012):

“(8) Where the project involves specifically identified physical elements, aspects, and facilities that are likely to generate impacts, environmental and social risks and impacts will be identified in the context of the project's area of influence. This area of influence encompasses, as appropriate:

- *The area likely to be affected by: (i) the project and the client's activities and facilities that are directly owned, operated or managed (including by contractors) and that are a component of the project; (ii) impacts from unplanned but predictable developments caused by the project*

that may occur later or at a different location; or (iii) indirect project impacts on biodiversity or on ecosystem services upon which Affected Communities' livelihoods are dependent.

- *Associated facilities, which are facilities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable.*
- *Cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted."*

A buffer should also be included in the identification of the area of indirect influence.

The area of influence of the project is therefore determined and defined by the ecological and social boundaries of potential impacts and dependencies of both the project and the stakeholders who may be influenced by the project. Ecological baselines will be required that identify both habitat and species in the area of influence. Meaningful stakeholder¹¹ participation is essential in determining the potential impacts and dependencies of the project (all activities and all phases) on biodiversity and ecosystem services within the area of influence.

All these factors are interlinked, and therefore the area of influence needs to be determined alongside and adapted according to the natural resource dependencies and impacts of both the project and stakeholders on habitats, species and the ecosystem services. An ecosystem service review is the recommended way to address this. Points of potential conflict and competition for resources need to be carefully and thoroughly identified in order to pinpoint the risks and opportunities for sustainable development. This in turn assists in the development of sustainable livelihoods interventions and conservation management activities that can be implemented with the communities and other stakeholders to work towards sustainable and equitable objectives in the landscape.

Calculations of residual impact and offset design must consider ecosystem function

Ecosystem functions are the range of functions that result from ecosystem processes and benefit life, such as supporting food chains and providing refuge and nursery grounds for species. These functions include the 'ecosystem services' on which human lives, livelihoods and well-being depend, such as clean water supply, pollination and spiritual inspiration. Ecosystem function must be considered in the identification of suitable offset areas and activities.

The use of hectares or quality hectares as a metric for calculating the scale of impacts and offset requirements has been widely adopted. However, just because an area is the right size and habitat does not mean it will perform the correct function in the landscape. Sole reliance on an area-based metric for determining offset requirements has raised serious cause for concern. For example, the project plan for an iron ore project in Guinea includes a new railway line, which will pass through an area of important chimpanzee habitat. The physical area to be cleared will be very small as this is a narrow, linear feature and so the impact for biodiversity has been ranked as low. According to the company's net positive impact strategy and methodology, an offset will not be required to address the impacts of the new line. However, the functional effects, as a result of fragmentation for example, are likely to be significant. This highlights the limitations of measuring the scale of residual impacts simply on the basis of the type and area of habitat to be

¹¹ Stakeholders are defined as those communities, agencies or other actors in the landscape that may have influence over the project, or who may have dependencies or cumulative impacts on the natural resources of the area of influence.

cleared. Reliance solely on an area-based metric for calculating the scale of impacts and offset requirements therefore disregards ecosystem functionality, a problem compounded by the inadequate consideration of ecosystem function in EIA/ESIA processes.

Mongolia's recent national offset policy focuses on an area-based metric, which may fail to account for a range of potential direct, indirect and cumulative impacts of development projects in Mongolia's fragile desert landscapes (e.g. South Gobi). Such failure to acknowledge the significance of these impacts in national policy means that there is little incentive for developers to rigorously apply the mitigation hierarchy to mitigate some of their impacts. The methodology applied in Mongolia may potentially not only underestimate the area of land required to offset impacts on habitats and species, but also run the risk of not fully compensating for all types of ecosystem-level loss.

In South Africa, ecosystem function is incorporated in provincial offset and national wetland offset guidelines. Wetland offsets, for example, specifically include mitigating residual impacts on hydrological functioning and water resources (including both water resource and water quality objectives), and ecosystem services (see Jenner & Balmforth 2015). The existence of the updated National Biodiversity Assessment (DEA-SANBI 2012) and of fine-scale mapping of ecosystems at the provincial level help mitigate risks of developers attempting to reduce the size of their offset requirement, in that they clearly establish where priority areas occur, and where these might overlap with habitats that appear to be of 'poor' condition but are important for ecological functioning.

The mapping of biodiversity and conservation priorities is an important enabling factor

Mapping of biodiversity at the relevant spatial scale and determination of explicit conservation priorities has been demonstrated to be an important enabling factor both in terms of driving impact avoidance (e.g. through project re-design) and minimisation measures, and in facilitating offset design and implementation. The value of locating offsets within a broader conservation plan for a given species has also been well documented (e.g. BBOP 2013, Kormos *et al.* 2014). In South Africa, there has been considerable investment in mapping biodiversity at various scales and identifying priority areas for protecting biodiversity and ecosystem function, and for achieving national and regional conservation targets. These include Critical Biodiversity Areas that best represent a region's natural diversity, including threatened or unusual habitats and ecosystems, flora and fauna, and underlying ecological functions, and where these should be conserved in the most land-efficient way. The existence of such data has enabled experts to promote the rigorous application of the mitigation hierarchy and strengthen emphasis on impact avoidance and minimisation. It has been possible to base all aspects of offset planning and design on meaningful ecological data. This greatly facilitated, and helped to validate, assessment of: (a) whether offsets were feasible; (b) the quantitative scale of residual impacts; and (c) where best to locate offsets to meet ratio requirements and achieve conservation goals.

Landscape approaches to offsets

Conservation challenges often mean grappling with the competing interests of diverse land users and land uses, from the livelihoods and spiritual needs of local communities, to mining, tourism and protected areas. Whilst ecosystem approaches provide an important scientific basis for management, these complex social, economic and ecological challenges call for a landscape approach. Often, however, the biodiversity and ecosystem values that exist across a landscape are overlooked when measuring impacts and identifying potential offset sites.

At a country level, project by project offset site selection and design has contributed to a disparate, fragmented collection of potential offset sites that fail to take account of the needs of species and of key ecosystem functions such as connectivity and resilience, and/or do not effectively protect an ecologically viable set of ecosystem values to the level required to ensure the persistence of important biodiversity. For example, species offsets in the US have involved the protection of sites that are subsequently managed for a particular 'listed' species. However, evidence shows that offset sites are often considerably smaller than the home range of the focal species and may be isolated from other areas of compatible habitat for that species (see Kormos *et al.* 2015).

To date, approaches to biodiversity offset planning and implementation have largely been fragmented both within and between countries and have lacked a landscape or ecosystem perspective. The situation is improving in some parts of the world. In the US, for example, conservation banks are strategically sited to contribute to the overall conservation of the species. Most USFWS-approved conservation banks have been sited to conserve parcels within identified core conservation areas and reduce fragmentation within the landscape, as is the case with Florida panther and most San Joaquin kit fox banks (Kormos *et al.* 2015; L. Alderman pers. comm.).



A landscape approach considers all the different ecological functions, human values, uses and needs in a landscape and integrates them to achieve multiple objectives at the same time. Using a landscape scale helps to understand all the issues at play and identify where conflicts exist, where trade-offs will occur and where different objectives might work together. This approach is not about finding perfect outcomes, but about recognising compromises as a necessary part of the management process and seeking solutions that can provide the best possible benefits. To do this, landscape approaches need to involve all individuals, communities, organisations and sectors that have an interest in decisions affecting the land, water and resources around them. Aggregated offsets, in their simplest and probably most effective form, would enable landscape level biodiversity offset interventions that provide for an optimum outcome for ecological patterns and processes as well as function, species composition and climate resilience.

Considerations for offsets moving forward: Mitigation (and offset) planning

- Offsets are a last resort, only *after* all options to avoid, minimise and rectify impacts on biodiversity have been considered. Additional guidance and case studies are needed to inform and demonstrate appropriate and possible avoidance and minimisation measures.
- Efforts to strengthen the effectiveness of EIA/ESIA in requiring the rigorous application of the mitigation hierarchy should be undertaken as part of national offset policy development. Whilst necessarily led by government, this requires commitment from government, civil society (ensuring accountability), donor agencies, development banks, environmental/sustainable development consultancies and private sector proponents.
- The integration of biodiversity offset design within the EIA/ESIA process can help to drive impact avoidance and minimisation measures and should be required by the relevant authority.
- The accounting process for the loss and gain of biodiversity and ecosystem services (if this approach is used) needs to be applied throughout the mitigation planning process to ensure that all aspects of the mitigation hierarchy are accounted for in the determination of the residual impact. This has to take account of certainty/uncertainty within the mitigation actions, and suitable timeframes for success.
- Wide stakeholder consultation as part of development project planning and EIA/ESIA processes is paramount.
- Ecosystem function, including ecosystem services, should be incorporated into EIA/ESIA and the methods used to determine offset requirements. This will require the continual improvement and integration of assessment approaches for ecosystem function and services.
- Development and offset projects must consider impacts on social and cultural values and traditions (see *Social impact assessment (SIA)*, below, for further discussion)
- Environmental *and* Social Impact Assessments need to be carried out in parallel, and risks identified in each need to be integrated.
- Mapping of biodiversity at the relevant spatial scale and determination of explicit conservation priorities is an important enabling factor for driving impact avoidance (and minimisation measures) and facilitating offset design and implementation.
- A landscape approach to offset scoping that considers the range of ecological functions, human values, uses and needs in a landscape can allow for the identification of potential offset options in the landscape that meet offset requirements (i.e. compensate for residual impacts) but also take into account other constraints and opportunities. Wide stakeholder consultation can help to ensure the transparent and participatory assessment of options and potential compromises.
- Aggregated offsets, in their simplest and probably most effective form, would enable landscape-level biodiversity offset interventions that provide for an optimum outcome for ecological patterns and processes as well as function, species composition and climate resilience.

3.4 The social aspects of biodiversity offsetting

Communication, coordination and collaboration

The successful development and implementation of offset policy requires effective communication and coordination among many parties including:

Government (as regulator and developer):

- Within and between ministries: inter-ministerial communication and coordination is vital and yet in many countries is lacking, resulting in the misalignment of policies, plans and priorities, and uncoordinated action on the ground (e.g. issuance of overlapping concessions for different and potentially conflicting land uses).
- Between the agencies involved in the drafting of licensing conditions and those working with the offset developer to ensure their practical implementation.

Companies:

- Between different functions *within* a company (e.g. social and environment). Within individual companies the environment and social functions at corporate and operational level often operate as siloes with limited communication and coordination and internal barriers to information and data sharing. This can lead to poor understanding of the relationships between biodiversity, ecosystem services and human well-being, and a failure to take these relationships into account when assessing the impacts of a project and designing mitigation measures. The appropriate design and planning of mitigation measures and any necessary compensation actions, including any offset requirement, requires a coordinated and interdisciplinary approach on the part of the company. This is particularly important when considering impacts on ecosystem services. A coherent and integrated approach to understanding and addressing impacts on biodiversity, ecosystem services and other social and cultural values is needed.
- Between different companies (including competitors). Evidence shows that sharing with other companies, even among competitors, seems to increase the chances of offset success. This may involve, for example, the sharing of baseline data, joint planning in the aggregation of offset areas or shared investment in aggregated offsets, shared resourcing or expertise for offset management.
- For example, the Tanintharyi Nature Reserve Project in Myanmar involves payments from three gas pipeline companies to support the creation and ongoing management of a protected area, as compensation for impacts on biodiversity along the pipeline routes. Although the project was not designed as a biodiversity offset, and impacts and gains were not quantified, the compensation project has been widely cited as a success by conservation agencies and NGOs. There is reported to be excellent coordination and collaboration between project partners from private sector, government and civil society and this is cited as an important factor in project success. It is important to note, however, that broader 'stakeholder involvement has been mixed and often limited' and 'local villagers did not participate in decisions over reserve design and have no involvement in reserve management' (Pollard *et al.* 2014). Project partners believe that the project is contributing to the conservation of Myanmar's biodiversity and that this has been done at no operational, and only minor financial, burden to the companies involved. The project 'has a large programme of community support and development, which is helping to recognise community forestry rights of indigenous groups and improve their livelihoods' through

initiation of land use planning, community forestry and micro-credit programmes. The extent to which these benefits are equitable is unclear (Pollard *et al.* 2014).

Stakeholders:

- Between the developer and all stakeholders in and around an offset site, noting that rights holders will extend beyond those with legal ownership of an area of land. Even people without formally recognised rights can strongly influence the success of a project on the ground if they are *de facto* accessing and using the land and resources in question.

It calls for honesty, transparency, trust and equity to foster constructive dialogue and promote coordinated action to deliver multiple objectives.

Stakeholder participation

The principle and importance of effective stakeholder participation is reflected in five of the 10 Principles for Biodiversity Offsets, established by the Business and Biodiversity Offsets Programme, BBOP (2009). IFC (2012) Performance Standards (PS), and specifically PS7, outline the circumstances in which Free, Prior and Informed Consent (FPIC) is required for those in receipt of IFC financing. IFC limits its commitment to FPIC to formally recognised indigenous peoples, not other local communities. Some countries, including Peru, Australia and Philippines have incorporated FPIC principles into national law. The International Council on Mining and Metals (ICMM) issued a position statement (2013)¹² outlining its view and commitment on FPIC (which applies to all ICMM member companies). However, this statement has been widely criticised as a backward step in recognising Indigenous Peoples' rights to FPIC compared with ICMM's earlier 2008 position, particularly with respect to an indigenous community's right to say no to a mining project¹³.

Despite an abundance of best practice guidance and toolkits, all too often stakeholder involvement within development planning processes is compliance driven and not fit for purpose. In practice, some companies have only committed to FPIC under the revised and diluted definition of Free, Prior and Informed Consultation and in many cases stakeholder engagement processes are compliance based and involve the minimum necessary for the project to be able to proceed. The inadequacy of stakeholder participation processes within development planning is an inherent problem underlying EIA/ESIA in many parts of the world and has been cited as an issue in offset planning and negotiations.

In Australia, interested and affected parties have the opportunity to make public submissions during the development planning process (i.e. through individual project EIA processes) and through the recent senate inquiry (2014) into offset effectiveness (Hawdon *et al.* 2015). However, following EIA approval, offset details are often negotiated between the relevant environmental department and the proponent, with little opportunity for public input or scrutiny. Traditional Owners in Australia argue that they are not adequately consulted in decisions regarding early assessments, design and implementation of offsets. Offset plans and monitoring results are not being made publicly available, even when they are finalised. The same is true elsewhere.

Failure to engage stakeholders in a meaningful and participatory way can have serious consequences for the delivery of biodiversity outcomes from offsetting. Such engagement is

¹² <http://www.icmm.com/document/5433>

¹³ For further discussion see <http://firstpeoples.org/wp/mining-councils-new-commitment-to-fpic-falls-short/>

crucial to: understand the way in which different stakeholders utilise, depend on and value biodiversity and ecosystem services; assess the social impacts of any proposed offset/s; and to explore opportunities for maximising participation in the early assessment, planning, implementation and monitoring of offsets.

The QIT Madagascar Minerals (QMM) ilmenite mine in Madagascar is one such case in which there was a failure to adequately communicate and consult with stakeholders in the planning and design of biodiversity offsets resulting in insufficient consideration of i) the social impacts of the mine, including the displacement of ecosystem service flows, and ii) the scale of consequent third-party threats to the offsets. This led to conflict with local communities, disruption to operations, misalignment of livelihoods and offset activities to what was really appropriate in the context, and increased pressure from local stakeholders to extract ecosystem goods and services from some of the proposed offset areas. This has resulted in material cost to the company both in terms of disruption to operations and blockages of roadways preventing employees from getting to work, resulting in lost production time and associated loss of revenue. Moreover, sites planned as avoided-loss offsets have suffered from considerable degradation in the years since the offset plan and NPI forecast were conducted. The outcome has been a loss of biodiversity from offset sites.



Increasingly, the importance of securing a 'social licence to operate'¹⁴ to avoid conflict and improve stakeholder-company relationships, coupled with a growing number of international and national requirements for stakeholder engagement and/or FPIC, is driving some operators, in some locations, to raise their standards. In South Africa engagement with relevant stakeholders has proven critical in informing and influencing the design and location of offsets and generating project support. The insights of authorities and conservation agencies, NGOs, as well as farmers' associations and other CBOs active in the affected area, are invaluable in arriving at an optimum plan and strategy for implementation of offsets, as well as workable financial and logistical arrangements. Experience in South African cases points to transparency in offset studies

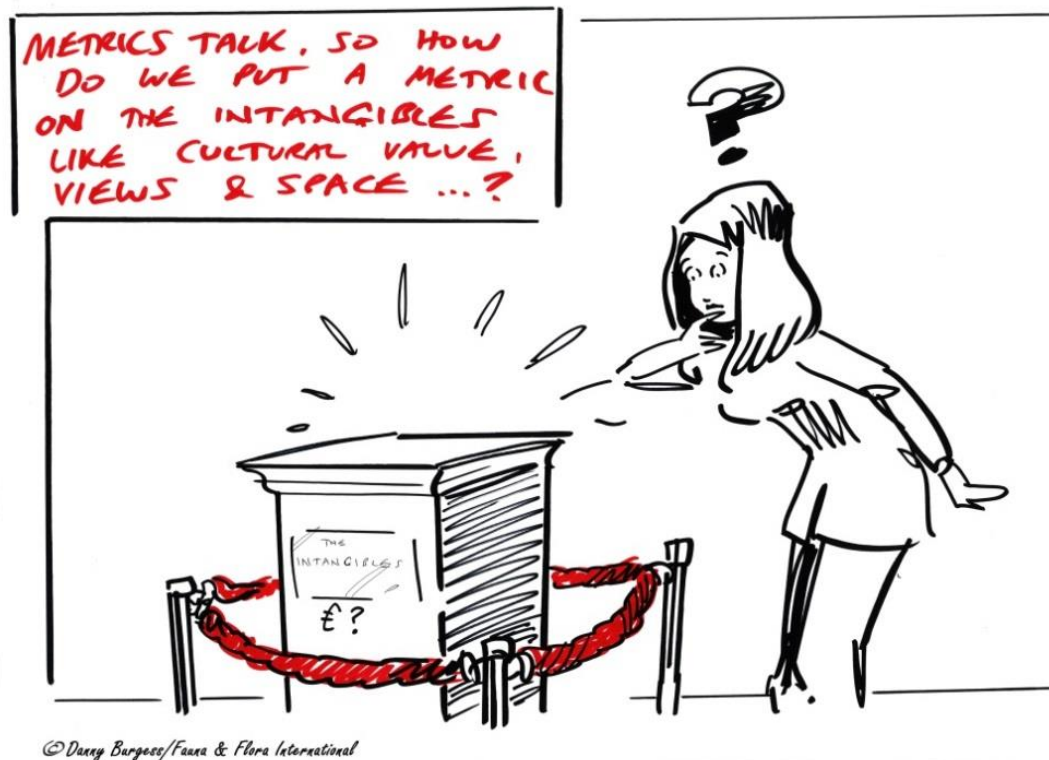
¹⁴ Gaining a 'social licence to operate' refers to a proponent gaining support for a development project from interested and affected stakeholders, over and above meeting any legal requirements.

building trust among stakeholders and potentially minimising later legal challenges for the developer.

With the offsets agenda in many countries being driven by private sector, national government, lender banks and international donor agencies there is very real risk that those who will influence the success of, and be most affected by, any national or sub-national offsets policy are excluded from planning and decision-making processes. A national framework that does not have buy-in from stakeholders, and particularly those dependent on land and natural resources for their livelihoods and well-being, will face challenges in implementation (see also discussion under *Tenure and management frameworks*).

Meaningful stakeholder engagement that respects and fulfils FPIC as an internationally recognised right will be necessary if offsets are to be designed in a way that makes them feasible, fair, appropriate and sustainable over the long term. There is much to learn from experience in the development of REDD+ projects to inform stakeholder participation processes (see Jenner *et al.* 2015 for further discussion).

The intangibles: taking social and cultural values into account



Our landscapes function as complex social, cultural and ecological systems that are interdependent and constantly co-evolving over space and time. Natural ecosystems underpin the biophysical foundation and ecosystem services for social and economic development, and are constantly being shaped by human decision making. A holistic and integrated approach to understanding these socio-ecological *systems* over space and time is therefore needed in order to understand likely impacts of development projects and the impacts and/or potential benefits of proposed offset activities.

However, quantifying social and cultural values is not easy and in practice offsets have failed to take sufficient account of these values. In Australia, for example, Traditional Owners have

argued that the current federal offset system does not adequately consider cultural values associated with their lands. Meanwhile in South Africa, provincial offset guidelines do include specific consideration of ecosystem function and both ecosystem function and ecosystem services are important considerations in the determination of wetland offsets. Notably, however, neither resource-economic nor social impact assessments are routinely carried out as part of EIAs in South Africa and it is generally only the larger, complex and/or controversial EIAs that commission them. As a result, EIAs seldom explicitly address the linkages and dependencies between biodiversity, ecosystem services and human well-being. This makes the ecosystem services consideration particularly challenging to take into account in offset design.

Wide stakeholder consultation is essential when considering how to i) offset a project's potential impacts on social and cultural values, ii) determine the likely impacts (positive and negative) of any offset project for social and cultural values, and iii) identify and build consensus on potential trade-offs and compromises. The concerns of affected communities at both the development and offset site must be addressed through direct consultation and participatory processes, noting that i) social science approaches to such assessments will differ from scientific assessments, ii) accounting for such values appropriately presents real challenges, and iii) it may not be possible or appropriate to apply metrics to quantify these values. *'Not everything that can be counted counts and not everything that counts can be counted,'* Albert Einstein.

Social impact assessment (SIA)



The goal of biodiversity offsets is to achieve no net loss - and preferably a net gain - of biodiversity not only in terms of species composition and habitat structure, but also ecosystem function and *the goods and services that people derive from that biodiversity, including both use and cultural values*. The BBOP Standard on Biodiversity Offsets therefore highlights the need for attention to be paid to the social impacts of offsets. Such impacts are manifested in two main, interrelated ways. Firstly, the process through which local stakeholders participate in decisions

on the assessment and selection of potential offset sites and through which those offsets are subsequently designed, implemented, monitored and evaluated (see BBOP Principle 6: Stakeholder participation). Secondly, through the socially differentiated effects that offset activities have on the maintenance and enhancement of ecosystem services on which those stakeholders' livelihoods and well-being depend (see BBOP Principles 3: Landscape context, 4: No net loss, and 7: Equity).

Good-practice SIA is necessary in order that biodiversity offset projects can:

- Ensure positive outcomes for local people, including by identifying risks and potential negative impacts at an early stage so that these can be prevented or mitigated;
- Achieve social sustainability: landscapes are essentially complex, adaptive, socio-ecological systems, hence the success of biodiversity offsets depends on getting the social and community aspects of the project right;
- Increase the understanding and participation of local stakeholders in design and implementation, thereby facilitating positive relationships between project developers and local stakeholders, respect for the rights of indigenous people and local communities, and the integration of local knowledge and values;
- Facilitate adaptive project management, further contributing to project sustainability and offset permanence;
- Contribute to the currently weak empirical body of evidence on the socio-economic impacts of biodiversity offsets¹⁵.

Despite the recognition of the role of biodiversity in human well-being and the need to, at the very least, exercise the precautionary principle, there are several challenges in developing biodiversity offsets that achieve positive benefits for people. Firstly, how can project developers identify potential social and cultural impacts, both positive and negative? Secondly, how should they subsequently design, implement, monitor and evaluate activities in order to meet the 'do no harm' requirement for affected communities? This can be particularly challenging because offsetting activities could affect a wide range of economic activities - for subsistence and income generation - as well as legal and customary rights, and cultural values that can be deeply held but hard to articulate.

The situation is further complicated by the need to ensure that the risks, costs and benefits to local stakeholders are equitably distributed, i.e. that this distribution is considered by all those involved to be transparent and fair. This is particularly problematic where the stakeholders at the offset site(s) are different from those at the development site(s) in cases where these sites are geographically dispersed. In addition, social (and indeed biodiversity) impacts have a number of inherent characteristics that make them particularly difficult to assess, including that they:

- Tend to be long term, making it difficult and often unrealistic to identify them in the short term;
- Are often unforeseen (especially in the case of negative impacts);
- May be subtle, indirect, contested and not easily measured;
- Can be difficult to distinguish from intermediate outcomes.

¹⁵ Adapted from Richards, M. and Panfil, S.N. 2011.

The challenge therefore is to develop and implement a sufficiently rigorous but cost-effective SIA methodology for biodiversity offsets. Similar issues have had to be faced in the design and implementation of REDD+ initiatives at national, regional ('sub-national') and local ('project') levels and much can be learned from the experience of REDD+ for improving the effectiveness of social assessments to account for values such as cultural ecosystem services¹⁶ (see also Jenner *et al.* 2015). The use of this kind of good-practice SIA can also provide additional benefits, such as encouraging adaptive project management, which helps to ensure project sustainability and offset permanence.

Greater success in this context will hinge on: ensuring that all community engagement follows a free and prior informed consent (FPIC) approach; promoting compliance with the IFC's Performance Standards, noting that these provide existing best practice around the assessment and management of environmental and social risks and impacts (PS1) and indigenous peoples and cultural heritage (PS7 and PS8 respectively); and improving guidance on consultation processes and social aspects of impact assessments, recognising current limitations in IFC and ICMM positions on FPIC (see *Stakeholder participation* for further discussion).

Considerations for offsets moving forward: Social aspects of offsetting

- Barriers to effective communication and coordination within and between ministries and government departments, within and between companies, and between government, companies and stakeholders need to be identified and overcome.
- Building the capacity of civil society to participate in development planning and decision making processes will be essential.
- The motivations and objectives of individuals and organisations involved in offsetting will often differ. Understanding these dynamics is important in order to foster synergies and mitigate conflicts.
- Offset frameworks are emerging in new geographies with varying socio-political contexts, complex tenure systems and customary natural resource use and access rights, and strong cultural values associated with nature and land or seascapes. Meaningful stakeholder engagement that respects and fulfils FPIC as an internationally recognised right will be necessary if offsets are to be designed in a way that makes them feasible, fair, appropriate and sustainable over the long term.
- Regular, face-to-face communication and engagement is fundamentally important to build the mutual trust and respect that is crucial for the success of any offset project. The time, logistics and resources required for full stakeholder participation and FPIC processes should not be underestimated.
- Attention needs to be paid to both the language and medium used to communicate complex and often highly technical projects and this must be appropriate and accessible. The ability to communicate project concepts in simple yet meaningful ways can help generate support from a wider range of stakeholders.

¹⁶ FFI has produced a series of outputs from a learning event held in Cambridge in April 2013 to share experiences, tools and lessons learned on the social aspects of REDD+ and other conservation strategies. These are available to download from FFI's Livelihoods and Governance library: <http://www.fauna-flora.org/initiatives/livelihoods-and-governance-library/#learning>

- There are many cases where local people whose actions have a profound impact on a landscape – or who may be adversely affected by changes in land management - lack formally recognised land use or management rights. Such people are nevertheless still stakeholders and are likely to be instrumental in the success of a biodiversity offset project. All stakeholders are entitled to have their basic human rights respected, including rights of access to information, participation and justice.
- Companies should respect the full meaning of Free Prior and Informed Consent as an internationally recognised right.
- Project developers need accessible guidance to help them interpret and comply with high standards and safeguard principles in a sufficiently rigorous but cost-effective manner.
- Understanding the landscape/s in which development projects and offsets are proposed as socio-ecological systems can underpin a more integrated assessment of impacts and opportunities for delivering biodiversity and ecosystem service benefits through offsets.
- In the context of offsets, it is important to be explicit about the inevitable trade-offs between conservation and livelihoods, acknowledge that there are not always ‘win-win’ solutions and ensure that it is not the poorest and most marginalised people who lose. Building consensus on what those trade-offs are and what compromises are acceptable to all will be challenging but essential.
- There is a need to improve approaches to understanding socio-ecological systems and the social and cultural values associated with landscapes and nature.
- Much can be learned from the experience of REDD+ for improving the effectiveness of social impacts assessments to account for values such as cultural ecosystem services.
- Limits to what can be offset must include consideration of socio-cultural values. Avoidance should be prioritised at all costs.
- Offsets activities should consider social and cultural processes and should embed these in the design of the conservation actions that form part of the offsets and mitigation plans.
- Given its wide acceptance by policy makers and project developers, the participatory theory of change (or causal) model used in SIA for some REDD+ projects could be considered as a feasible and credible methodology for participatory project design as well as social and biodiversity impact assessment in the context of biodiversity offsets.

3.5 From planning to implementation – practical considerations

Capacity and competency gaps

Practitioners and experts in South Africa cite uneven capacity across all competent environmental authorities, biodiversity specialists and EIA practitioners with regard to understanding and applying biodiversity offsets as one of the main challenges. This is also true of the NGO sector. Limited capacity is acknowledged as a major constraint in the development of national offset schemes in countries where offsets are being proposed and planned (e.g. Johnson 2015). To make offsets work, there is a dire need to build capacity and foster continual learning across all sectors.

Specialist skills are needed to cope with the complexity of biodiversity offsetting schemes and the metrics used to measure impact and gains. Governments and professional bodies in Australia have provided training for ecological consultants and environment department staff and in some states only allow accredited trained consultants to undertake the biodiversity assessments and develop offsets (New South Wales and Victoria). This should improve the quality of impact assessment and offset design. Yet the senate inquiry heard examples of businesses cutting corners and accredited consultants generating unsatisfactory offset plans.

Involvement of independent experts improves quality and feasibility of offsets

The involvement of independent experts has been demonstrated in South Africa to be crucial for improving the quality and feasibility of offset design. Recent offset planning processes led by experts have focused on demonstrating how the mitigation hierarchy should be applied to avoid and minimise impacts on irreplaceable biodiversity, the extent to which offsets are feasible for addressing residual impacts, and how best to achieve offset requirements in the landscape (Jenner & Balmforth 2015). Plans have sought to provide a budget estimate and recommended actions for securing that budget. Continuity of expertise is also important yet often different consultants are contracted at different times during project planning and early implementation phases.

Restoration challenges

Restoration is an integral step in the mitigation hierarchy, the effects of which must be taken into account in arriving at a measure of residual negative impacts that must be offset. Yet in many areas restoration is an elusive goal owing to slow recovery and restoration rates of habitats and ecosystems, and/or the impossibility of restoration. Restoration is generally considered by experts to be impossible for most ecosystems in South Africa (with one or two exceptions, including wetlands). In addition, rehabilitation options for most terrestrial vegetation types focus on the removal of invasive alien plants and, since landowners are legally required to exercise a 'duty of care' in terms of NEMA, and to control these species on their land (in terms of the Biodiversity Act), offsets that focus on rehabilitation may offer little additionality.

As a result, the offset policy and methodologies supported by experts in South Africa – whilst closely aligned with the BBOP principles overall – diverge somewhat from the NNL principle in that the South African offsetting system is designed to achieve no loss *relative to conservation targets* for individual habitats and ecosystem types. The aim is to contribute to the conservation estate and achieve persistence above a minimum threshold for all ecosystems and the species they support. Some believe this 'managed drawdown' approach to be more realistic than the purported goals of other systems. Offsetting in South Africa therefore generally focuses on the protection and effective management of good quality extant habitat and ecosystems.

Where restoration is considered feasible, extreme caution must be applied when using predictions of successful restoration as part of the mitigation hierarchy in calculating the residual impact. In South Africa, some EIAs in which too great an emphasis was placed on effective restoration when assessing the significance of long-term residual impacts for biodiversity have been called into question, and environmental authorisation declined. A risk-averse, cautious and honest approach must be applied, particularly when restoration is doubtful, i.e. success should not be overestimated and residual impacts underestimated. Expert advice is essential to assess the ecological feasibility of any offsetting plan that proposes biodiversity gains through habitat restoration.

Offset project selection must consider the scale of external threats and how realistic it will be to remove these.

In a number of cases the selection of an offset site has not taken into account wider spatial or development planning, and the effects that third-party or external impacts would have on the offset project and on the adequacy of financial provision for its management. Where adjacent land has been earmarked for commercial forestry, settlement, or agricultural expansion, for example, the costs of effective management (burning regime, invasive alien species removal and/or control of poaching) may increase significantly over time. Local population growth, which is almost inevitable where a major extractive operation is established, must also be factored into offsets planning – whether averted loss or restoration offsets – because of the pressure that population growth will place on the ecological integrity of offset sites.

The time it takes to implement an offset should not be underestimated – and too often is.

The design and implementation of an offset can take a long time and this is often underestimated. Long timelines are caused by a number of factors, including:

- The many separate steps involved in taking an offset plan to implementation, such as those required to establish appropriate financing mechanisms, locate and secure an appropriate offset site, design and garner support for offset activities, establish appropriate management strategies and implement and monitor these, with potential for delays at every stage.
- Securing land tenure or management agreements with rights holders, agreeing and setting up trust funds or other financing structures can involve complex and lengthy processes.
- The time it takes for offsetting actions to be fully implemented and converted into biodiversity gains: Habitat restoration can take decades, even centuries, and there is no certainty that full species composition equivalent to the native ecosystem that has been affected will be achieved.

Pragmatism and feasibility in offset design are essential

Whilst rigour and defensibility are essential, there is also a strong need to recognise the value of pragmatism across all sectors in offset design. Offset design can become a highly technical and theoretical process owing to the complexity of the metrics and methods involved. However, an offset that is technically strong also has to be feasible and appropriate if it is to be implemented effectively. This is particularly true when offsets involve ecological restoration and depend on stakeholder willingness and commitment, and where the size of properties and types of land tenure differ across a landscape and a country. It is essential to know what is required to offset residual impacts to biodiversity, how this can be realistically achieved and within what timeframe, in order that proposed biodiversity outcomes can be met. Ongoing capacity building processes and pragmatic, real world implementation insight and experience on the part of the regulator and across all sectors will be crucial to support offset planning, implementation and delivery of biodiversity outcomes.

Consideration for offsets moving forward: From planning to implementation

- The involvement of experts is important in the design of offsets such that they are based on sound, defensible science and are feasible.
- Offset plans and conditions attached to licences must be realistic about the time it takes to implement an offset project.
- Ongoing capacity building processes and pragmatic, real-world implementation insight and experience on the part of the regulator and across all sectors will be crucial to support offset planning, implementation and delivery of biodiversity outcomes.
- Offset scoping must consider the scale of external threats and how realistic it will be to remove these.
- Restoration may be difficult or impossible for some ecosystems. However, where restoration is considered feasible, extreme caution must be applied when using predictions of successful restoration as part of the mitigation hierarchy in calculating the residual impact. A risk-averse, cautious and honest approach must be applied.
- Expert opinion should always be sought on the ecological feasibility of any offsetting plan that proposes biodiversity gains through habitat restoration.
- Whilst rigour and defensibility are essential, there is also a strong need to recognise the value of pragmatism across all sectors in offset design.
- It is often best to progress a number of alternative offset sites during the planning and early implementation phases because there are many reasons an identified site may turn out to be unsuitable and/or biodiversity goals are unachievable.

3.6 Ensuring *longevity* in implementation

If offsets are to deliver intended biodiversity outcomes, *longevity* in implementation is paramount. Securing land tenure or covenants on land under a variety of mechanisms, including community use and stewardship, private and state-owned land in conjunction with the necessary sustainable financial mechanisms will be required. Below we explore current patterns in tenure and management models, and some of the challenges encountered to date in the development of financing arrangements.

Tenure and management frameworks

Offset success depends on the offset implementer having control over land management. The challenges associated with securing an area for biodiversity in perpetuity have been discussed (see *Securing an area for biodiversity in perpetuity*). Here we reflect on current tenure and management models employed in the establishment of offset projects, and their respective merits, and consider the challenges and opportunities for offset implementation in new geographies.

Current tenure and management frameworks in the context of offsets

In existing offset projects, the implementer is typically the developer, a contracted third party (government agency, NGO or private landowner), or a member of a habitat bank who is generating credits. Control over land management is secured through land ownership or via an easement / covenant or contract that requires the landowner to manage land in a prescribed

way. Understanding tenure regimes and assessing appropriate tenure and management frameworks for offset projects is therefore essential if offsets are to be implemented over the long term and deliver lasting biodiversity outcomes.

Management of offsets is often outsourced to third parties. This can be an effective model, especially in cases where the developer has insufficient in-house expertise and where the appropriate budget for ongoing management costs has been adequately built into offset plans. For example, in South Africa the Shaw's Pass offset project in the Western Cape involves CapeNature (the provincial conservation agency and a public institution) and a private landowner. CapeNature will oversee and monitor the offset project and holds a trust fund, the interest from which will be used to cover management costs. The landowner has signed a legal agreement to designate the area as a Nature Reserve and will receive annual payments (a 'management fee') for this from the offset fund (see Jenner & Balmforth 2015 for further details).

The involvement of not-for-profit conservation organisations in planning and implementing land management actions at offset sites can also be beneficial because these are often the bodies with both the necessary expertise and appropriate objectives. In the United Kingdom a number of pilot offsets are managed and implemented by the Royal Society for the Protection of Birds, at least in part because it is trusted to apply conservation rigour and to manage the land towards the offsets' principal biodiversity aims.

However, when third party contracts are determined through a competitive tender there is a very real risk that the cheapest bidder will end up responsible for offset implementation, rather than the bidder best able to manage the offset towards its aims.

The conservation banking system in the United States presents an alternative management model. In this case, it is usually private individuals who secure land through purchase, place the land under a conservation agreement and undertake necessary management actions to restore habitat for the target species (see *Species offsets deliver measurable gains in habitat* and Kormos *et al.* 2015 for further discussion). To register land as a conservation bank, the USFWS requires that a conservation easement¹⁷ be placed on the bank site to protect the property's conservation value in perpetuity, a management plan for the bank produced and a non-wasting endowment or trust fund set up. Should the bank owner relinquish responsibility for the bank in the future it would be transferred to the USFWS (Kormos pers. comm.)

Tenure and management frameworks in emerging economies

As offset policy and practice moves into new countries where the land situation is complicated and tenure is unclear, the need to understand tenure regimes at multiple levels is paramount. Recent research has highlighted that in many emerging economies ownership of land can be granted to an operator without the tens of thousands of people who live or depend on that land knowing anything about it (TMP 2012). This constitutes a material risk to the developer, with unresolved conflicts over land tenure significantly augmenting the financial risks for companies in infrastructure and mining sectors. Delays caused by land tenure problems can inflate a project's expenditures by an order of magnitude, and in some cases these losses have even been great enough to endanger the future of the corporate parent itself (TMP 2012). The importance of wide stakeholder consultation and of establishing appropriate social baselines that include tenure analysis should not be underestimated, and too often is (see discussions on *Communication, coordination* and *collaboration*)

¹⁷ A legal agreement between a landowner and an eligible organisation that restricts further activities on the land to protect its conservation values.

The successful development and implementation of offset policy requires effective communication and coordination among many parties including:

Government (as regulator and developer):

- Within and between ministries: inter-ministerial communication and coordination is vital and yet in many countries is lacking, resulting in the misalignment of policies, plans and priorities, and uncoordinated action on the ground (e.g. issuance of overlapping concessions for different and potentially conflicting land uses).
- Between the agencies involved in the drafting of licensing conditions and those working with the offset developer to ensure their practical implementation.

Companies:

- Between different functions *within* a company (e.g. social and environment). Within individual companies the environment and social functions at corporate and operational level often operate as siloes with limited communication and coordination and internal barriers to information and data sharing. This can lead to poor understanding of the relationships between biodiversity, ecosystem services and human well-being, and a failure to take these relationships into account when assessing the impacts of a project and designing mitigation measures. The appropriate design and planning of mitigation measures and any necessary compensation actions, including any offset requirement, requires a coordinated and interdisciplinary approach on the part of the company. This is particularly important when considering impacts on ecosystem services. A coherent and integrated approach to understanding and addressing impacts on biodiversity, ecosystem services and other social and cultural values is needed.
- Between different companies (including competitors). Evidence shows that sharing with other companies, even among competitors, seems to increase the chances of offset success. This may involve, for example, the sharing of baseline data, joint planning in the aggregation of offset areas or shared investment in aggregated offsets, shared resourcing or expertise for offset management.
- For example, the Tanintharyi Nature Reserve Project in Myanmar involves payments from three gas pipeline companies to support the creation and ongoing management of a protected area, as compensation for impacts on biodiversity along the pipeline routes. Although the project was not designed as a biodiversity offset, and impacts and gains were not quantified, the compensation project has been widely cited as a success by conservation agencies and NGOs. There is reported to be excellent coordination and collaboration between project partners from private sector, government and civil society and this is cited as an important factor in project success. It is important to note, however, that broader 'stakeholder involvement has been mixed and often limited' and 'local villagers did not participate in decisions over reserve design and have no involvement in reserve management' (Pollard *et al.* 2014). Project partners believe that the project is contributing to the conservation of Myanmar's biodiversity and that this has been done at no operational, and only minor financial, burden to the companies involved. The project 'has a large programme of community support and development, which is helping to recognise community forestry rights of indigenous groups and improve their livelihoods' through initiation of land use planning, community forestry and micro-credit programmes. The extent to which these benefits are equitable is unclear (Pollard *et al.* 2014).

Stakeholders:

- Between the developer and all stakeholders in and around an offset site, noting that rights holders will extend beyond those with legal ownership of an area of land. Even people without formally recognised rights can strongly influence the success of a project on the ground if they are *de facto* accessing and using the land and resources in question.

It calls for honesty, transparency, trust and equity to foster constructive dialogue and promote coordinated action to deliver multiple objectives.

Stakeholder participation and *The intangibles*, above).

Although tenure issues are too expensive and complicated for individual firms and investors to resolve independently, risk provides a strong incentive for the private sector to contribute to clarifying and securing tenure rights. Moreover, where national offset frameworks are being proposed, it is important to understand existing tenure issues and explore opportunities to contribute to broader national processes, in order to clarify and secure tenure relating to land and natural resources (see Johnson 2015, for example). This will necessarily involve significant lead-in periods and lengthy timelines. Therefore, a pragmatic approach to the development of offset policy and practice will be needed.

Recent national frameworks propose locating offsets within state-owned proposed protected areas (e.g. Liberia), or existing, but underfunded, protected areas (e.g. Mozambique). The respective merits and risks associated with this approach have been discussed elsewhere (e.g. Pilgrim & Bennun 2015) and relate primarily to risks of cost-shifting (e.g. creating perverse incentives to cap or cut funding to protected areas in anticipation of offset funding filling the gap) and issues of equivalence (i.e. that biodiversity in offset areas is not comparable to biodiversity in impact sites – it is not ‘like-for-like’ and may not be ‘like-for-better’ either). Impacts of a development project on ecosystem function and the provision of ecosystem services for those living in and around the area are also not taken into consideration under this model. Moreover, few emerging frameworks adequately explore the opportunities for linking offset schemes to other existing or nascent conservation frameworks that would augment and strengthen a country’s formal protected areas network.

Conservation frameworks for managing land and natural resources do exist in many of the countries in which offsets are emerging. Exploring opportunities to strengthen and embed offsets within such frameworks can enable greater offset success. From a developer and investor perspective, the additionality in terms of biodiversity (and social) outcomes can also be very significant, as areas eligible for or under existing community tenure are generally outside the formal protected areas network and are afforded lower levels of protection and investment.

In South Africa offsetting has been successfully embedded within national and provincial biodiversity stewardship programmes¹⁸. Biodiversity stewardship is essentially an approach to entering into agreements with private and communal landowners to protect and manage land in biodiversity priority areas, led by conservation authorities in South Africa (SANBI 2014). It recognises landowners as the custodians of biodiversity on their land and is based on voluntary commitments from landowners, with a range of different types of biodiversity stewardship

¹⁸ Biodiversity stewardship began as a pilot in one province in 2003. Within ten years, biodiversity stewardship programmes had been initiated in all nine provinces in South Africa. By October 2014, provincial biodiversity stewardship programmes had secured over 400 000 ha through the creation of 71 protected areas, making substantial contributions towards meeting national protected area targets. An additional 540 000 ha are expected to be secured by the end of 2015, creating a further 146 protected areas across the country with long-term security (SANBI 2014).

agreements available to support conservation and sustainable resource use. Biodiversity stewardship is implemented on sites that have been identified as important for biodiversity and ecosystem services, based on best available science. Biodiversity stewardship has proven to be a highly cost-effective mechanism for expanding protected areas (SANBI 2014) and offsets have been successfully integrated into this system.

The need to overcome inertia and set a precedent for use of existing but untested tenure models has also been demonstrated in the context of community REDD+. For example, in the Indonesian context the tenure instrument that has been used, that of village forest (*hutan desa*), had been on the statute books for years, but no forest areas had actually secured such tenure. It was only once one village (in the neighbouring area to where FFI was working) had succeeded in gaining the licence, that local government began issuing licences to other villages and subsequently further villages requested support to gain their own village forest rights. This example illustrates the usefulness of developing a proof of concept at the local level, which can then have a snowball effect for both communities and government.

Elsewhere, opportunity exists to embed offsets within existing community-based natural resource management structures and mechanisms, to strengthen nascent community-based organisations and to trial innovative community-based tenure models and management approaches. There is a precedent for such approaches through other market-linked conservation strategies such as REDD+, which have demonstrated their effectiveness in delivering benefits for biodiversity and communities in addition to specific carbon offset requirements (see Jenner *et al.* 2015). International and individual country experience in community-based REDD+ projects can inform approaches to developing grass roots offset projects¹⁹.

Experience in REDD+ has demonstrated, for example, that appropriate project design and implementation is often more likely where stakeholders have intrinsic incentives for committing to long-term sustainable management. For example, where there are strong cultural values associated with a site and/or resources; high reliance on those resources for their livelihoods; a desire to protect resources from expropriation by more powerful external actors; and/or good understanding of the value of other ecosystem services, whether provisioning (food, medicinal plants, fibres and/or water supply for household use, irrigation and micro-hydropower), supporting or regulating (protection from landslides, mitigation of drought/flood, water quality, pollination).

In terms of REDD+, the revenue generated through sale of carbon credits is designed to provide an additional financial incentive. In the context of offsets, conservation banking operates on a similar model whereby the banker is able to generate revenue through the sale of species or habitat credits. The viability of this model for supporting community-based offset projects warrants further investigation.

Increasingly FFI REDD+ projects also support communities to increase the value accrued to them from existing livelihoods strategies such as agriculture and agroforestry, and help ensure these strategies are sustainable ecologically, economically and socially. Biodiversity offsets on community-managed lands would need to address the same question regarding what combination of monetary and non-monetary incentives are most influential in driving people's behaviour towards natural resources.

¹⁹ FFI has produced a series of outputs from a learning event held in Cambridge in April 2013 to share experiences, tools and lessons learned on the social aspects of REDD+ and other conservation strategies. Topics include Free, Prior and Informed Consent, gender, sustainable livelihoods, social impact assessment, opportunity cost analysis, grievance mechanisms, equitable benefit sharing and tenure and resource use rights. These are available to download from FFI's Livelihoods and Governance library: <http://www.fauna-flora.org/initiatives/livelihoods-and-governance-library/#learning>

Jurisdictional and Nested REDD (JNR) approaches provide further valuable insight for scaling up the implementation of individual projects and incorporating these within sub-national schemes in order to ensure that offset gains (whether biodiversity or carbon emissions reductions) ‘add up’ across a landscape and are embedded within developing national or subnational REDD+ or biodiversity offset governance frameworks and schemes (see Citroen *et al.* 2015).

Transfer of liability

The transfer of liability has been highlighted as a crucially important consideration. In Australia, for example, New South Wales introduced a choice for developers between negotiating a biobanking offset or a payment in lieu of offset. Developers overwhelmingly chose the payment in lieu, with only ten biobanking statements in eight years. The payment in lieu of offset option transfers the liability away from business in a quick and efficient manner. It passes that liability to the government to deliver the offset, extending the time lag for real offsetting and leaving government holding the environmental and financial risk. Transfer of liability is a serious consideration and one that can have real consequences for the delivery of biodiversity outcomes.

The need for early establishment of financing vehicles

A successful national offsetting framework depends crucially on early establishment of financing vehicles that are simple to use, transparent and securely governed. However, difficulties associated with establishing offsetting finance structures have proved a major cause of delays and failures.

Whilst the trust fund model has proved successful in the United States, in South Africa it has, to date, often proved difficult to implement because government agencies are unable or unwilling to hold the trusts themselves. In some cases this may be because money could not be ring-fenced by public bodies (i.e. it might end up in central treasury). Others cite fears that the agency would face budget cuts by central government if it were seen to be ‘sitting on a pile of money’. Government bodies are also not permitted to make interest on capital, which they would have to be able to do in order to finance the offset over the long term from the trust fund. Attempts have been made instead to persuade conservation NGOs to hold and administer trust funds, but with limited success, apparently because some NGOs fear the increased audit scrutiny that would accompany this responsibility and a lack of clarity on the limits of the liability.

Examples of the successful negotiation, planning and establishment of financing vehicles are emerging. For example, in the case of Gamsberg zinc mine in South Africa the developer has been contracted to provide a prescribed amount of money per year (until mine closure plus 10 years) into a trust, and that contract is enforceable through any court. The developer has also put up surety to protect against a situation in which the mine (operated by a subsidiary of the company) claims no profits and refuses to pay. If land purchases fail then penalties are payable to the government, who then must use that money to buy the required areas of land (see case study in Jenner & Balmforth 2015).

Offset funding linked to company profit, in phased payments, or with caps to offset costs, should be avoided

Offset funding as a percentage of company profits has been permitted on numerous development projects in countries including South Africa, Madagascar and Liberia, and presents serious risks to offset implementation and delivery of biodiversity outcomes. An offset costs a certain amount to achieve, such that reducing funding when profits fall can amount to complete failure in terms of the offset’s goals, rather than proportionally reduced levels of success. The

provision of phased payments has also been applied in some cases and can be problematic from an ecological perspective, particularly where the impact of a project is not phased in a way that justifies phasing offset implementation. Phased payments linked to company profits should therefore never be permitted.

In some cases, companies have been able to negotiate with regulators such that the cost of their offsets is capped, and they are not required to pick up any costs that exceed this cap, even if the result is that the offset will fail. This should never be permitted. Success for biodiversity depends crucially on companies being held responsible for generating sufficient compensatory biodiversity gains, regardless of the costs.

Governments should not underestimate the ability of industry to pay the full cost of compensating for its impacts on biodiversity. The Australian experience clearly shows that the vast majority of companies will continue to do business and incorporate the cost placed on biodiversity conservation into project budgets. Their behavioural response can also drive innovation in relation to earlier stages of the mitigation hierarchy (e.g. designing innovative avoidance measures such as directional drilling).

Timing of project impacts versus offset benefits

At the very least, payment that fully finances the offset plan should be required *before* the impact is allowed to occur, with funds being transferred to an appropriate vehicle before the project is under way. Preferably, offsets should be *implemented* prior to impacts occurring. Without these safeguards, there is a significant risk that the offset will never be realised on the ground, whilst the project goes ahead and the impact occurs. This issue has been highlighted in all country assessments relating to both past and present cases. In South Australia, for example, approved projects commenced but were subsequently unable to find an appropriate offset (Fisher 2010). In such circumstances offset conditions may be amended to the benefit of proponents.

In South Africa, the conditions of environmental authorisation are increasingly stipulating that construction cannot begin until there is assurance that the offset site will be / has been secured, and funds set aside. The timelines in which a proponent must secure the offset site and implement the offset are also increasingly being incorporated in licensing conditions. In Australia, the approach of the Victorian government requires the offset to be secured prior to the impact, leaving legal and financial risks with the proponent and increasing efficiency of offset implementation, since it is a condition for development to commence. This approach was supported through separate government policies aimed at incentivising the third-party offset market.

In the United States, whilst some offset schemes allow for protection of an area to occur at the same time as the impact (e.g. Permittee Responsible Mitigation (PRM) schemes²⁰) or after the impacts, as with the in lieu fees²¹ system (since sufficient funding must be accrued before an offset site can be achieved on the landscape), the conservation banking system is different. Conservation banks are “permanently protected lands that contain natural resource values, which are conserved and permanently managed for species that are endangered, threatened, candidates for listing, or are otherwise species-at-risk”²² as well as provide habitat and protection

²⁰ Permittee responsible mitigation (PMR) requires the project proponent to undertake compensation themselves. Therefore success of the mitigation remains with the project proponent. This is the most common form of offsetting in the US.

²¹ In lieu fees require the permittee to pay a fee to an USFWS-approved compensation fund in lieu of implementing their own mitigation. In the case of in lieu fees, the sponsor is the one that carries out the mitigation and therefore the liability for the success of the mitigation is transferred from the project proponent to the in-lieu fee programme sponsor.

²² <http://www.fws.gov/endangered/landowners/conservation-banking.html>

for the many other species that live on the property but are not listed. To qualify as a conservation bank, the bank owner must permanently protect a plot of land through a conservation easement, or other equivalent real estate protection instrument, and then manage the property for a given species or several species. A long-term management plan and a trust fund or endowment is required to cover the costs of permanent management and monitoring of the conservation bank. Crucially, the USFWS will only release credits once the bank has been established (i.e. the offset must be in place before the impact).

Considerations for offsets moving forward: *Longevity* in implementation

- Understanding the local context is important to ensure appropriate design and implementation of offsets. Use of participatory mapping and engaging relevant experts (e.g. social scientists) can help understand important issues relating to, for example, the status, cultural heritage, livelihoods and priorities of people in the project area; the nature of rights over land and natural resources in the project area; the nature of interactions between different groups and actual or potential sources of conflict; impacts of these factors on land and natural resource use.
- Understanding tenure regimes and assessing appropriate management frameworks will be necessary for countries considering the use of offsets as a mechanism for mitigating the impacts of development projects on biodiversity and ecosystems.
- It may be necessary to contribute to broader processes of tenure clarification at the appropriate level in countries considering developing national offset policy. This may involve lengthy timelines and so a pragmatic approach to the development of offset policy and practice will be needed in the interim, including the grass-roots development and demonstration of offset projects at different scales (e.g. community, jurisdictional).
- Longevity in offset implementation will require securing land tenure or covenants on land under a variety of mechanisms, including community use and stewardship, private and state-owned land in conjunction with the necessary sustainable financial mechanisms.
- There may be opportunity to set a precedent for use of existing but untested tenure models, as has been demonstrated in the context of community REDD+.
- Opportunity exists to link offsets to community-based natural resource management structures and mechanisms, to strengthen nascent community-based organisations and to trial innovative community-based management approaches.
- Capacity building to enable rights holders to exercise existing rights relating to land and natural resource use will be essential. This can deliver strong social and environmental benefits if appropriate support, facilitation and incentives for sustainable natural resource management approaches are provided.
- The *long-term* incentives to adhere to a conservation management regime (including sustainable use of land and natural resources) are an essential consideration.
- Apply best practice in the use of performance-based contracts with communities: where the community is not the project proponent then a performance-based contract, covenant or agreement must be negotiated between the project proponent and the community. Respecting the right to FPIC is critical at all stages of project development including the contract negotiation stage.

- International and individual country experience in community-based REDD+ projects can inform approaches to developing grass-roots offset projects that can be replicated and scaled up.
- A successful national offsetting framework depends crucially on early establishment of financing vehicles that are simple to use, transparent and securely governed. Budgets for funding offsets need to be iterative and dependent on the objectives set and the results of the monitoring and evaluation programme designed to determine success of the offset. Revisiting the budget over the full life of the offset is fundamental.
- At the very least, payment that fully finances the offset plan should be required *before* the impact occurs, with funds being transferred to an appropriate vehicle before the project is under way. Preferably, offsets should be *implemented* prior to impacts occurring.
- Time lags between the impact occurring and offset being implemented, and weaknesses in financial arrangements, such that the full costs of offset implementation over time are not budgeted for, can have very serious and real consequences for biodiversity.

4 INDICATIONS OF OFFSET EFFECTIVENESS

Through this assessment myriad issues relating to the delivery of biodiversity offsets as a mechanism for addressing the impacts of project development on biodiversity have been highlighted. The key question, however, is whether offset projects are being implemented on the ground and, more importantly, whether they are effective in achieving biodiversity outcomes. In this section we share some of the indications that, despite a host of political and implementation challenges, biodiversity offsets do have potential to, and in some cases can, deliver benefits for biodiversity.

Refusal of development projects on the grounds of inadequate offset plans

In Australia, a small number (10) of proposed developments have been refused owing to the inadequacy of their offset plans. It is a very limited number given how long offsets have been around in Australia, but it does indicate that the system can work, and is working in some cases.

Offset planning process promotes greater emphasis on impact avoidance

The South African system has demonstrated that even in the absence of an overarching national offset policy, existing legislation here has allowed for the competent authority to require *evidence* of mitigation measures and offset feasibility within the EIA process and for offset plans to be mandated as conditions within the approval to develop. The integration of biodiversity offset design into the EIA process has enabled greater potential for impact avoidance through project re-design because it makes the benefits of avoidance and minimisation clearer through subsequently reduced offset costs. This tends to make avoidance a more tangibly advantageous strategy to the developer. The integration of offset planning into the EIA process, availability of regional and fine-scale biodiversity plans, and the involvement of independent experts in the drafting of licensing conditions, has therefore served to encourage greater emphasis on the early steps of avoidance and minimisation in the mitigation hierarchy, quantification of residual impacts and the assessment and design of offsets as a last resort for addressing residual impacts. This has resulted in the avoidance of areas identified as important for biodiversity and ecosystem function (in line with available biodiversity sector plans and fine-scale biodiversity assessments) and enabled the development of offset plans that are more feasible and appropriate and that are

mandated through enforceable conditions in environmental approvals (see Jenner & Balmforth 2015 and references therein for further discussion and case studies).

Projects designed with real potential to succeed

Offset projects are emerging that have the foundations and building blocks in place for success. Two projects stand out in this regard. The first is Ambatovy in Madagascar, a large-scale nickel and cobalt mining enterprise and a pilot project with the Business and Biodiversity Offsets Programme (BBOP) since 2006. The company's biodiversity management strategy is based on application of the mitigation hierarchy with an objective of no net loss, or preferably a net gain, of biodiversity and has been working to apply the mitigation hierarchy and biodiversity offsetting in accordance with the Biodiversity Offset Standard (BBOP, 2012) and the IFC Performance Standards on Environmental & Social Sustainability (IFC, 2012). The project has been through a second-party evaluation (pre-audit) against the BBOP Standard on Biodiversity Offsets. A detailed case study and lessons learned report has been compiled and is available on the BBOP website (see von Hase *et al.* 2014).

The second is the Gamsberg offset project in the Northern Cape, South Africa. The Gamsberg offset plan, developed to compensate for residual impacts of a zinc mining project, is considered by offset experts as a 'gold standard' example for South Africa (and arguably internationally), one that recognises offsets as a last resort after every effort has been made to avoid and minimise impacts. The need to avoid irreplaceable habitat was considered in the early planning phases of the project. Importantly, conditions attached to the environmental authorisation for the development project stipulated that the offset plan had to be signed off by the provincial conservation authority *before* any activities on the development project could be undertaken. The developer is contracted to provide a prescribed amount of money per year (for the lifespan of the mine plus 10 years) into a trust in order to secure, establish, rehabilitate and manage offset areas, and that contract is enforceable through any court. The developer has also put up surety to protect against a situation in which the company claims no profits and refuses to pay. If land purchases fail then penalties are payable to the government, which then must use that money to buy the required areas of land.

This is one of few real examples in which a practical, "*achievable offset has been identified, confirmed and approved based on an expert-driven process, and subject to a tight agreement between the mining company and regulatory authority*" (Hughes *et al.* 2015) within the bounds of legal frameworks and with the conditions of agreement drafted with advice from offsets experts. The offset therefore offers "*high potential for successful implementation and securing a protected area for conservation of this unique inselberg region in perpetuity*" (Hughes *et al.* 2015). IUCN's Biodiversity and Livelihood Committee is to oversee and audit the offset implementation process for a period of at least five years.

There are some important uncertainties relating to potential impacts of dust and groundwater drawdown for threatened vegetation that could translate into irreversible loss of biodiversity at this site. Ultimately, however, the trade-off between this risk and the benefit of securing a major area to protect the critical core of the Bushmanland Inselberg Region (which is currently not protected at all) was viewed as acceptable by all parties. The third and perhaps most concerning area of uncertainty regarding the long-term sustainability of the Gamsberg offset project relates to the existing mining rights in the offset areas that could take precedence over surface land rights in the future. Only time will tell (see also Jenner & Balmforth 2015 and references therein).

Species offsets deliver measurable gains in habitat

In the United States, there are some species for which there has been a net gain in habitat over time. The San Joaquin kit fox is one example. This species has been listed as Endangered since 1967 and whilst historically it ranged throughout the San Joaquin Valley of California, today it is only found in fragmented populations around the periphery of the valley. Population numbers have dropped from about 12,000 individuals in the 1930s to fewer than 3,000 individuals today and about 80% of the remaining habitat is on private property. Data indicate that for this species, there has been a net gain in habitat between 1987 and 2007 (see Kormos *et al.* 2015).

Features of the conservation banking system that make it ecologically preferable to some other approaches include the fact that they generally protect larger areas by aggregating offsets into one location; they are also usually located strategically to contribute to overall conservation of the focal species. Crucially, conservation banks have to be secured and have a management plan in place before credits are released by the USFWS. The offset must therefore be in place before the impact occurs. In the US, conservation banks are being used to great effect alongside other conservation approaches for species and habitat protection (Kormos *et al.* 2015).

5 CONCLUDING THOUGHTS

Development is political and therefore the mitigation of impacts, and offsetting, are political too. Offsetting is also a social process; it involves and affects people, and its effectiveness depends on them. Emphasis on the technical challenges of offsetting to date and a paucity of case studies has obscured this reality and masked some of the fundamental challenges underlying offset implementation and the delivery of biodiversity outcomes. Yet without political support and stakeholder participation even the most technically strong projects will face potentially crippling challenges in implementation. There needs to be recognition that the security of offsets and associated biodiversity outcomes will always be vulnerable to changing political agendas and that the involvement and support of stakeholders is essential in delivering long-term benefits.

There is a growing need for open access data of all kinds, but particularly relating to current and future land use potential. Other urgent requirements include establishing and/or strengthening inter-ministerial coordination on land use and development planning and fostering integrated landscape planning processes that take account of the multiple objectives for any landscape and seek to identify synergies and compromises in a transparent and participatory way. Alongside this, there is a need to build and/or strengthen the evidence base for biodiversity and ecosystem services in countries where economic growth is accelerating and offsets are emerging. Scientific, defensible information can enable better planning and help ensure that biodiversity needs are integrated into the decision-making process.

The scale and pace of development of extractive, infrastructure and agricultural sectors is intensifying and threatens vast swathes of biologically rich and culturally sensitive ecosystems around the world. The starting point for offsets must therefore be a thorough understanding of the political, socio-cultural, economic and ecological contexts in which offset policy and projects are being developed. It will be necessary to initiate long-term processes (e.g. of tenure clarification) and to establish and/or strengthen policy and legislation, in order to create a robust and defensible framework within which offsets can operate.

Urgent action is also needed to address the impacts of development taking place here and now. Therefore in parallel to longer-term policy processes, it will be necessary to develop and pilot offset projects on the ground to demonstrate proof of concept within a particular ecosystem or

jurisdiction that can then be scaled up and/or adapted for replication elsewhere. Pilot projects offer an important means to test, iterate, learn and communicate the constituent parts of what is required for a national or sub-national offset scheme and to ensure that it can be effectively implemented on the ground. Progress can also be made in raising awareness and building capacity across all sectors, fostering cross-sectoral collaboration, developing guidance and providing practical advice to those involved. This will require working from the grass roots up as well as from the top down, and calls for pragmatism and innovation in establishing offset systems and projects that can really work on the ground.

For biodiversity offsetting to serve as an effective conservation mechanism, offsets need to be designed as conservation projects and implemented alongside myriad other conservation approaches. In this respect there is much to be learned from the experience of other conservation strategies including REDD+. It requires tenure and management frameworks that embrace the concept of biodiversity stewardship and empower communities and other stakeholders to sustainably manage the land and natural resources on which they depend. Working at multiple levels – local, sub-national and national – will be crucial. Opportunities to deliver on multiple objectives for biodiversity *and* sustainable development must be explored; recognising that as offsets emerge in new geographies the needs of local people must be taken into account and addressed if offsets are to serve as an effective mechanism for addressing the residual impacts of development.

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This report draws together learning generated through a series of studies and discussions for which the following individual reports are available to download from the FFI website at:

<http://www.fauna-flora.org/initiatives/business-biodiversity-resources/>

Country assessments and case studies:

Hawdon, A., Marsh, D. & Parham, E. (2015) *Biodiversity offsets: Lessons learnt from policy and practice. Country Summary Report: Australia*. Unpublished Report. Fauna & Flora International.

Jenner, N. & Balmforth, Z. (2015) *Biodiversity offsets: Lessons learnt from policy and practice. Country Summary Report: South Africa*. Unpublished Report. Fauna & Flora International.

Kormos, R., Mead, D. & Vinnedge, B. (2015) *Biodiversity offsetting in the United States: Lessons learned on maximising their ecological contribution*. Unpublished report prepared for Fauna & Flora International.

Nyul, H. (2015) *Biodiversity offsets: Lessons learnt from policy and practice. The good, the bad and the ugly*. Unpublished report. Fauna & Flora International.

Learning from REDD+

Citroen, S., Balmforth, Z., & Howard, P. (2015) *Biodiversity offsets: Learning from REDD+. Measurements, accountability and aggregation*. Unpublished report. Fauna & Flora International.

Jenner, N., Pio, D., Schneider, H., Cullen, Z., Kempinski, J., Harris, R. & Evans, V. (2015) *Biodiversity offsets: Lessons learned from community REDD+*. Unpublished report. Fauna & Flora International.

FFI Biodiversity Offsets Learning Event:

Holland, T., Jenner, N. & Knight, T. (2015) *Biodiversity offsets learning event: Briefing report*. Unpublished report. Fauna & Flora International.

7 REFERENCES

BBOP (2012) *Biodiversity Offset Standard*. Available for download at http://www.forest-trends.org/documents/files/doc_3078.pdf

BBOP (2013) *To No Net Loss and Beyond: An Overview of the Business and Biodiversity Offsets Programme (BBOP)*. Available: http://www.forest-trends.org/documents/files/doc_3319.pdf

BirdLife International, UNEP-WCMC, RSPB, FFI & the University of Cambridge (2015) *Strengthening implementation of the mitigation hierarchy: managing biodiversity risk for conservation gains*. A Cambridge Conservation Initiative – Collaborative Fund Project Report. Available from: <http://www.conservation.cam.ac.uk/collaboration/strengthening-mitigation-hierarchy-greater-conservation-gains>

Citroen, S., Balmforth, Z., & Howard, P. (2015) *Biodiversity offsets: Learning from REDD+. Measurements, accountability and aggregation*. Unpublished report. Fauna & Flora International.

CSBI (2015) *A cross-sector guide for implementing the mitigation hierarchy*. Prepared by The Biodiversity Consultancy for the Cross Sector Biodiversity Initiative (CSBI): <http://www.csbi.org.uk/wp-content/uploads/2015/09/CSBI-Mitigation-Hierarchy-Guide-Sept-2015-1.pdf>

DEA-SANBI (2012) *National Biodiversity Assessment 2011: An assessment of South Africa's biodiversity and ecosystems. Synthesis Report*. South African National Biodiversity Institute and Department of Environmental Affairs, Pretoria.

Evans, M. (2015) Offsetting in the context of policy. What happens to the theory when it hits the real world? *DecisionPoint*, 91 (August): 4-5

Fisher, A., Hurrell, B., Wallace, R., Della Torre, B., Jaunay, L. & Allanson, A. (2010) *SEB compliance and monitoring 2009-2010 Project Report. Native Vegetation and Biodiversity Management Unit*. Final Report. Government of South Australia.

Gardner, R. C. 2008. Legal Considerations. Pp. 69-87 in: Carroll, N., Fox, J. and Bayon, R. (eds.) *Conservation and Biodiversity Banking: A Guide to Setting Up and Running Biodiversity Credit Trading Systems*. Earthscan: London.

Hawdon, A., Marsh, D. & Parham, E. (2015) [Biodiversity offsets: Lessons learnt from policy and practice. Country Summary Report: Australia](#). Unpublished Report of Fauna & Flora International, Cambridge, England.

Holland, T., Jenner, N. & Knight, T. (2015) [Biodiversity offsets learning event: Briefing report](#). Unpublished report of Fauna & Flora International.

Hughes, J., Ahuja, L., Brownlie, S., Botha, M., Desmet, P. & Heather-Clark, S. (2015) [Using biodiversity plans to guide mitigation and offsets for a zine mine in Northern Cape, South Africa](#). Paper presented at the 35th Annual Conference of the International Association for Impact Assessment. 20-23 April 2015. Florence, Italy.

IFC (2012) *Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts*. International Finance Corporation, World Bank, Washington D.C.

IFC (2012) *Performance Standard 6. Biodiversity Conservation and Sustainable Management of Living Natural Resources*. International Finance Corporation, World Bank, Washington DC.

ICMM & IUCN (2012) *Independent report on biodiversity offsets*. Prepared by The Biodiversity Consultancy. Available at: www.icmm.com/biodiversity-offsets

Jenner, N. (2015) Exploring the challenges and opportunities for biodiversity offsets. *Oryx*, 49: 580.

Jenner, N. & Balmforth, Z. (2015) *Biodiversity offsets: Lessons learnt from policy and practice. Country Summary Report: South Africa*. Unpublished Report of Fauna & Flora International, Cambridge, England.

Jenner, N., Pio, D., Schneider, H., Cullen, Z., Kempinski, J., Harris, R. & Evans, V. (2015) *Biodiversity offsets: Lessons learned from community REDD+*. Unpublished report. Fauna & Flora International.

Johnson, S. (2015) *A national biodiversity offset scheme: A road map for Liberia's mining sector*. Washington, D.C. World Bank Group:
<http://documents.worldbank.org/curated/en/2015/04/24418254/national-biodiversity-offset-scheme-road-map-liberia's-mining-sector>

Kormos R, Kormos CF, Humle T, Lanjouw A, Rainer H, Victorine R, *et al.* (2014) Great Apes and Biodiversity Offset Projects in Africa: The Case for National Offset Strategies. *PLoS ONE*, 9: e111671. doi:10.1371/journal.pone.0111671

- Kormos, R., Mead, D. & Vinnedge, B. (2015) *Biodiversity offsetting in the United States: Lessons learned on maximising their ecological contribution*. Unpublished report prepared for Fauna & Flora International, Cambridge, England.
- Maron, M., Hobbs, R.J., Moilanen, A., Matthews, J.W., Christie, K., Gardner, T.A., Keith, D.A., Lindenmayer, D.B. & McAlpine, C.A. (2012) Faustian bargains? Restoration realities in the context of biodiversity offset policies. *Biological Conservation*, 155: 141-148
- Miller, K.L., Tresize, J.A., Kraus, S., Dripps, K., Evans, K.C., Gibbons, P., Possingham, H.P. & Maron, M. (2015) The development of the Australian environmental offsets policy: from theory to practice. *Environmental Conservation*, 42: 306-314.
- Oxford, M. (2013) *Ecological Capacity and Competence in Local Planning Authorities: What is needed to deliver statutory obligations for biodiversity?* Report published by the Association of Local Government Ecologists.
- Phalan, B., Hayes, G., Brooks, S., Marsh, D., Howard, P., Costelloe, B., Bhaskar, V., Kowalska, A., Whitaker, S. (*in prep.*) First, do no harm: shifting the focus from offsets to avoidance.
- Pilgrim, J. & Bennun, L. (2014) Will biodiversity offsets save or sink protected areas? *Conservation Letters*, 7: 423-424.
- Pilgrim, J. & Ekstrom, J. (2014) *Technical conditions for positive outcomes from biodiversity offsets. An input paper for the IUCN technical Study Group on Biodiversity Offsets*. Gland, Switzerland: IUCN.
- Pittmann, C. (2010) *Dead cat walking: As Florida panther habitat shrinks, extinction fears rise*. <http://www.tampabay.com/news/environment/wildlife/dead-cat-walking-as-florida-panther-habitat-shrinks-extinction-fears-rise/1087962>
- Pollard, E. H. B., Soe Win Hlaing & Pilgrim, J. D. (2014) *Review of the Taninthayi Nature Reserve Project as a conservation model in Myanmar*. Unpublished report of The Biodiversity Consultancy, Cambridge, England.
- Richards, M & Panfil, S.N. (2011) Towards cost-effective social impact assessment of REDD+ projects: meeting the challenge of multiple benefit standards. *International Forestry Review*, 13: 1-12.
- SANBI (2014) *Factsheet on biodiversity stewardship*, first edition. South African National Biodiversity Institute, Pretoria: <http://www.sanbi.org/sites/default/files/documents/documents/biodiversity-stewardship-factsheet16dec2014.pdf>
- The Munden Project (TMP) (2012) *The financial risks of insecure land tenure: An investment view*. Report prepared for the Rights and Resources Institute by The Munden Project. Report available from http://www.rightsandresources.org/documents/files/doc_5715.pdf
- The Senate Environment and Communications References Committee (2014) *Environmental offsets*. June 2014. © Commonwealth of Australia: http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications
- von Hase, A., Cooke, A., Andrianarimisa, A., Andriamparany, R., Mass, V., Mitchell, R. & ten Kate, K. (2014) *Working towards NNL of Biodiversity and Beyond Ambatovy, Madagascar – A Case Study*. Forest Trends and Ambatovy. Available from http://www.forest-trends.org/documents/ambatovy_2014

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