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## Net environmental gain: A note on principles and practical challenges

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In January 2018 the UK Government launched its 25 Year Environment Plan (H.M. Government, 2018). This stated that “We want to put the environment at the heart of planning and development to create better places for people to live and work” (p. 32). The approach to delivering this aim was also specified: “We will seek to embed a ‘net environmental gain’ principle for development to deliver environmental improvements locally and nationally” (p.33). This initiative sought to move from the status quo that “Current policy is that the planning system should provide biodiversity net gains where possible” (p.33) and expand policy such that “In future, we want to expand the net gain approaches used for biodiversity to include wider natural capital benefits, such as flood protection, recreation and improved water and air quality” (p.33).

This note seeks to set out the principles and practical challenges that a net environmental gain initiative should adopt and address.

The principles underpinning the concept of **net gain** are straightforward: for a net gain to arise then the benefits to society have to outweigh the costs. The concept of a **net environmental gain** confines those benefits and costs to the environmental realm but the principle is the same; **for a net environmental gain to arise then the environmental benefits to society have to outweigh the environmental costs**. This has to hold irrespective of wider costs and benefits (including housing, impacts on incomes and the economy, etc., the sum of which one would also expect to be positive, but that is beyond the present remit).

While the principles are straightforward, the practice is more complex and essentially consists of defining each of the terms emphasised above, specifically: **environmental; society; benefit and cost**.

- **Environmental:** This has frequently been confined to impacts upon wild species or biodiversity (although these two terms are very definitely not interchangeable and the subject of rigorous debate and definition elsewhere, e.g. Maron et al., 2018). Certainly ‘wild species of conservation interest’ (a much clearer and preferable concept) are an essential element of environmental gains or losses. However they are not the summation of environmental impact and a policy which restricts itself solely to the conservation of wild species is very unlikely to be delivering the best net gains to society. Other valuable environmental benefits include: Outdoor, open access recreation (which in turn can generate substantial mental and physical health benefits); Impacts on the water

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environment in terms of quality, quantity and flood risk; Soil health, stability and resilience; Greenhouse gas balance (including storage of carbon and reducing emissions of carbon dioxide, nitrous oxides, methane and other greenhouse gases); Amenity views to both local residents and those passing through the area; etc.

- **Society:** A key issue to acknowledge is that gains and losses are almost always in terms of effects upon people. This is typically the case even when appeals are made to concepts such as biodiversity which, strictly speaking, simply refers to the variety of plant and animal life in a defined location. Under such a non-anthropocentric and objective definition the replacement of a single rare species by two previously absent yet globally common species would represent an increase in biodiversity. The switch to a focus on wild species of conservation interest explicitly acknowledges the agency of humans in this decision and strips away the frequently adopted aura that such definitions are somehow environmentally determined or intrinsic in some non-human sense. However, a focus on such 'wild species of conservation interest' clarifies the question of who should be determining that list of relevant species and whether or not this is the appropriate focus of net gain compensation. At least two alternative constituencies deserve consideration: those who live in the vicinity of some environmental loss (say those who live near to a new housing development); and wider society. Our view is that it is the latter group which should be the focus of net gain compensation. The reason for this is straightforward, while it might seem most appropriate to compensate those in the immediate vicinity of losses, it is very unlikely that the funds made available for compensation will be best spent in that location. For one reason, by definition this will be an area subject to recent, often severe, environmental disturbance. Setting aside other environmental benefits, compensation here is less likely to be effective in terms of wild species conservation. Secondly, it is always likely that there are other far better locations where the positive effects of compensation funds could be far more effective in terms of the environmental net gains delivered; this is particularly the case when we consider the impacts of compensation upon wild species of conservation interest. We recognise that local political pressures will mitigate in favour of local action but given our arguments we would suggest that at most there should be a division of compensation between local and (more effective) nationally targeted schemes. In summary then we identify three rationales for environmental compensation targeting: enhancing wild species of conservation interest; local compensation; national conservation. Pragmatic combinations of all three are, of course, also possible.
- **Benefits and costs:** A key question concerns the adequacy of any net environmental gain compensation scheme. Basic economic theory provides straightforward guidance here: compensation for any loss is only adequate when it makes those concerned just indifferent between the loss going ahead with the compensation being paid, or the loss not occurring (and of course compensation not being paid). If those concerned are keen for the loss to go ahead then compensation is too high. If, on the other hand those concerned would prefer not to have the loss plus compensation then that compensation is inadequate (Johansson, 1991). In respect of environmental benefits and costs it is clear that the latter case dominates the former in real world planning and development cases. A practical problem arises concerning the assessment of the adequacy of net gain compensation. A basic requirement is that the benefits and costs generated by development and compensation are

assessed and quantified. However, even then assessment of the adequacy of compensation is not straightforward because the diversity of environmental impacts (discussed above) involves a similar diversity in measurement units. Trade-offs become difficult: How many tonnes of greenhouse gas removal balance a number of recreational visits? How much money should be spent on compensation? This problem of 'commensurability' has been the subject of very extensive research with methods being developed to directly equate the value of these benefits to the costs they incur all assessed within economic units (Natural Capital Committee, 2017). This acknowledges the reality that, every time a decision is made to say provide a certain environmental improvement at a specified cost, economic values are being implicitly placed upon those benefits. Such valuation is unavoidable and the essence of decision making; it is better to acknowledge this and make these values explicit than to hide them behind decisions made through implicit, unchallenged values. Compensation schemes should seek to maximise the net environmental gain provided by available funds and indeed the scale of those funds should be determined through a combination of benefit-cost analysis and the adequate compensation principle.

Net environmental gain compensation schemes also need to recognise and address certain other key issues. In particular **the location of any compensation scheme will fundamentally influence the benefits and costs it delivers**. As a simple example consider the issue of recreational open space, say delivered through the establishment of an open-access woodland. Locating this near to the urban fringe is likely to generate much greater benefit values than the establishment of an objectively identical woodland in a remote rural location accessible to only a small population. This value also varies according to the availability of alternative, substitute resources. Furthermore, location decisions can also have major effects upon the redistributive impacts of compensation schemes (Perino et al., 2014). Typically richer populations have greater ability to travel and access resources. **Locating compensation sites near to disadvantaged groups can bring major benefits to those populations.**

A further issue concerns whether those that pay for compensation schemes (e.g. developers) are also the best placed to undertake such schemes. Bringing in '**mitigation agencies**' (groups of specialist compensation scheme experts including natural scientists such as ecologists, hydrologists, soil scientists, as well as social scientists such as recreational planners, etc.), may well lead to higher value for money outcomes, particularly where competition between such agencies is permitted through **mitigation markets**.