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**Video 5: Uncertainty, time lags and multipliers: adjusting estimates of gain from an offset**

In Module 4 we covered the details of how to calculate biodiversity gains resulting from offset actions. By comparing outcomes at a site between the offset scenario and a counterfactual scenario, we can estimate the size of likely gain resulting from the offset action. But there are several other factors that we need to consider, which might increase the size of the offset site, or the amount of offset actions that need to be undertaken to be confident about achieving no net loss across both offset and development locations. The two most important factors are uncertainty and time lags.

First, there is usually more uncertainty about the gain we might get from an offset than there is about the losses caused by development. For example, restoration of certain natural habitats can be very difficult, and the offset might end up being only partially successful. This means that the offset gains from a given offset action will be lower than anticipated.

One way to account for uncertainty is to increase the offset requirement proportionally – offsets using risky or untested methods would need to be much larger than those using well-established ones. Similarly, if we have a lot of uncertainty about our counterfactual scenario, then the offset requirement should be increased to account for that. In this way we try to make sure that on average across offsets, no net loss is achieved.

Second, unlike losses, which are usually immediate as the development occurs, some offset gains take a long time to develop. The difference between when losses happen and the time at which gains have been achieved is called a time lag. For some offsets, these time lags can be decades or even centuries long. But an offset that creates a benefit now is more valuable than one that creates the same benefit in 50 years time, for many reasons. For example, the loss of a threatened species habitat could increase its risk of extinction in the short term, even if in the far future that habitat will be replaced.

Offset calculations can account for time lags using an approach called time-discounting. Time-discounting means the further into the future the offset gains are expected to occur, the more their value is discounted, or reduced. This means that a much greater amount of offsetting needs to be done for offsets that aren’t expected to deliver gains until a long time into the future. Accurately estimating the time that gains take to mature can be a challenge.

One way that offset requirements are adjusted to respond to issues like uncertainty and time lags is to use offset multipliers. This just means the amount of offset benefit that is required for a given development impact is adjusted. The longer offset gains take to develop and the higher the risk of the offset delivering less gains than expected, or of even failing, the larger the offset multiplier is. Multipliers therefore should vary depending on the habitat and action being taken. They can also account from a range of other process. On example is to account for leakage - the risk that although an offset might stop illegal clearing of forest in the location of the offset, that avoided illegal clearing could simply be displaced elsewhere, thereby reducing the gain the offset delivers, as the total amount of illegal clearing remains unaffected. Multipliers can also be used to place a premium on offset requirements for especially rare and threatened species.

Although multipliers can help, the best way of reducing uncertainty and time lags in offsetting is to produce the offset gains before the development loss occurs. When offsets are produced in advance [advanced offsets], their outcome doesn’t have to be predicted, and can be accurately measured on-ground (although the counterfactual still needs to be estimated), and multipliers can be reduced, or even removed. A developer can create advance offsets themselves, or buy them from others who have previously produced gain through offset banks. Offset banks have multiple land owners that use parts of their land to develop biodiversity credits which developers can purchase. However, finding credits that are close enough and of same biodiversity type [in-kind] from an offset bank can be difficult. Another risk is ensuring that the offset benefits were created specifically for the purpose of being used as an offset – otherwise, there is a risk that the offset gains are not creating new, or additional, biodiversity benefits compared to what would have happened anyway. For example, it would not be acceptable to retrospectively count past restoration work toward an offset, unless the restoration was done specifically to create offset credits, and registered as such at the time. As we saw in Video 4, ensuring offset benefits are genuinely additional is central to achieving no net loss.

So in summary, when designing or evaluating an offset, careful attention needs to be paid to reducing both the uncertainty that the expected benefit or gain won’t be realised, and reducing the time lag between the loss from the impact and the gain from the offset action. Once these factors have been reduced as much as possible, appropriate multipliers that increase the amount of offset action required can help to deal with remaining uncertainty and time lag. The next video will consider offset rules, and how they are used to help make sure that the net outcomes of losses and gains align with societal expectations.