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## Offsets and Risk

### Introduction and methodology

Environmental offsets (shortened to 'offset' here) are indirect compensatory measures used as mitigation for the unavoidable environmental impacts of development proposals (Middle and Middle 2010). They can include rehabilitating already cleared land or building new wetlands as compensation for that lost due to development (Robertson 2000; Gibbon and Lindenmayer 2007).

This paper explores the risks that are associated with the use and application of offsets in EIA. The main data for this study were in-depth interviews with key individuals who have an interest in the use of offsets in Western Australia (WA). Interviewees were drawn from key personnel from companies associated with the major resource proposals that were subject to EIA and the setting of offsets, consultants working in the field, representatives of conservation groups and officers from the key government agencies. The author has also drawn on his own experience in reviewing and setting offsets.

Four broad categories of risk associated with offsets are identified. The first three types of risk relate to the risk that the desired benefits and environmental outcomes are not delivered, either in part or not at all. The last type of risk relates to applying offsets to address the risks and uncertainty associated with a proposal the subject of EIA.

### Environmental risk

*Environmental risk* relates to the uncertainty as to whether the offset will deliver the predicted environmental benefits. For example, where a proposal involves the loss of coral and the offset involves growing new coral in a different location. Studies show that it can take decades and up to a century to re-establish coral communities, as mortality rates of transplanted communities can be as high as 75% after five years depending on the species (Garrison and Ward 2008).

One response to this uncertainty has been to increase the 'compensation ratio' that is set for the offset. This is the ratio between the area replaced compared to area lost (area of replacement / area lost). In most cases, this ratio is greater than one and can be as high as 10. Other than the uncertainty issue, there are two other reasons why this ratio should be greater than one (Minns 2006). First, it is generally acknowledged that it is almost impossible to get a like-for-like replacement for the habitat lost, and a larger offset area is required as compensation. Second, it usually takes considerable time for the offset habitat to reach maturity, leading to a net loss of productivity. To make up for this loss of productivity, the offset habitat is larger than the area lost.

Another element that adds to the risk here is the competence and track record of the proponent. Smaller companies with minimal experience in rehabilitation works are less likely to produce successful offsets than larger, well-experienced companies. This risk can be reduced in a number of ways, for example vested the offset in an independent agency specifically set up to manage offsets.

### Procedural risk

*Procedural risk* relates to potential flaws and corrupting influences in the process of deciding and implementing offsets. The general mitigation hierarchy in EIA is:

- Avoid impacts,
- Where avoidance is not possible, reduce and minimise impacts; and

- Where unacceptable impacts remain, offset those impacts (International Association for Impact Assessment and UK Institute of Environmental Assessment 1999).

In this hierarchy, offsets are introduced for consideration only when avoid and reduce options have been fully explored and residual impacts remain. Experience in WA suggests that some proponents introduce consideration of offsets early in the EIA, leading to concerns that full consideration is not given to the avoid and reduce options. In these cases, the very basis and principles of good EIA practice are being corrupted.

A further possible corruption factor is where the agency with the expertise in assessing offsets is also the agency that would manage the offset. There is a potential for this agency to argue for a larger offset that would normally be required when taking into account the proposals' residual impacts.

There are insufficient cases of the use of offsets in WA that would allow a definitive conclusion about this issue to be drawn. In the absence of good data on this issue, the mitigation hierarchy should be maintained with consideration of offsets only entertained once the avoid and reduce options are exhausted. However, in a political environment where governments are increasingly concerned about the timeliness of assessment and approvals processes, pressure will grow to consider offsets earlier rather than later. The IAIA can provide policy guidance on the use of offsets to help assessing agencies deal with this growing pressure.

## Threshold risk

*Threshold risk* relates to the possible application of offsets to circumstances that would normally be considered unacceptable. A key question for EIA when considering residual impacts is 'what level of residual impacts can be considered so significant that no offset can be considered appropriate?' For example, if a proposal involves the clearing of significant vegetation that would normally be considered unacceptable (a vegetation type or complex that is very poorly reserved and few examples of this type remains uncleared) then no offset can compensate this loss. The argument is that even if the offset involved a direct replacement of this vegetation type, no matter how large the offset was, the risk that the offset would fail as a direct replacement is so significant that the only option is to refuse the proposal. Such an argument raises the critical question about where is the threshold for such decisions?

A further issue raised by the WA practitioners is that if the final more political process of approval accepts an offset this could lead to a perception that an approval has been *bought*: i.e. the EIA process has been corrupted. The key reason for this is that in WA some offsets are not direct (i.e. rehabilitation of cleared vegetation) but are indirect and often involve the payment of money to fund further studies, research or management. The requirement to provide funds (albeit for a legitimate purpose) could lead to the *perception* that the approval has been bought.

This perception of buying and approval can be minimised where there is an independent agency that assesses the offset on its merits, and is also independent of the actual EIA process.

## Offset for uncertainty

The final risk is quite different from the other and can be seen as an opportunity rather than a problem - although caution should be used in applying them too widely. This relates to the use of offsets to compensate the uncertainty surrounding the level of impacts of a proposal and the risk that significant adverse environmental impacts could occur. This has been discussed previously (Middle and Middle 2010) and has been called *offsets for uncertainty*, and was based on observations of the WA EIA process where offsets were used in projects located in areas where there limited base-line data upon which to determine the level of impacts.

One example cited in that work related to impacts on turtle populations. Some of the major resource projects in the north of WA are located adjacent beaches significant for nesting turtles. Managing direct impacts on the female turtles that nest on the beaches is relatively easy, for example, exclusion of human activities from these beaches during the nesting season. The impact on the hatchlings is more problematic, and it is difficult to control the impacting factors (mostly lighting) and thus determine the long-term impacts on the overall turtle population i.e. will there be more predation of the hatchlings? In one case, the proponent for a proposed liquefied natural gas plant argued that the proposal could be managed so that it will not impact adversely on the turtle

population, but it acknowledged the residual risk. Consequently, an offset was set that recognised this residual risk: i.e. the proponent was required to fund a A\$32.5 million 30-year program to provide additional protection for the turtle population in areas away from proposal site. This offset can be considered a 'residual risk' offset in that it is provided not because of an adverse impact, but because there is a risk that adverse impacts could occur.

Further, the proponent was required to provide an offset in the event that monitoring demonstrates that the proposal was having a significant adverse impact on the turtle population. The offset will be a requirement to carry out actions to improve recruitment to the turtle population (i.e. reduced the loss of hatchlings), to a total cost of \$5 million. The type offset can be considered a 'banked offsets', as it will only be called upon in the event that monitoring show adverse impacts have occurred.

These types of offsets have potential to be used in other circumstance where there is significant uncertainty about the level of residual impacts. For example, where dredging is required to provide ship access to new port, and there is significant nearby benthic habitat that either will be directly lost as it is in the dredging footprint, or could be lost indirectly because sediment from the dredging activities disperses and smothers the habitat. In these cases, modeling is used to predict likely indirect loss of benthic habitat, but significant uncertainty remains as to the accuracy of that modeling and the actual extent of impacts when the dredging is carried out in in real environmental conditions.

Whilst these 'offsets for uncertainty' have the potential to be used more broadly as a policy tool in EIA, Middle and Middle (2010) noted two cautions in applying them too widely. The first was the threshold issue noted above: there may well be cases where the residual risk remains unacceptable no matter what offset is applied. The second is one of practice and risk quantification. There should be a clear link between the nature and extent of the offset and the level of residual risk but how are the two actually compared is not clear. This could likely be resolved through case-by-case application and precedent setting but to-date there has been too few examples of these offsets to allow for clear rules to be established.

## Discussion and conclusion

The EIA practitioners in WA can be broadly divided into two groups based on their general views about offsets: those that represent proponents (private consultants or environmental officers working for proponent companies); and those working for the EPA or the conservation movement. Those in former group (proponents) were most concerns about potential procedural risks: in particular, that government agencies involved in the offsetting process will use the EIA process to bargain for a greater offset than would normally be the expected. This is primarily because the offsetting process happens very late in the EIA process, when the final approval is about to be granted. Several examples were given where a proponent felt obligated to provide a larger offset than what should have been required, and the the proponent agreed to this offset to avoid any further delays in getting an approval. They calculated that the delay would cost more money than the extra cost of the larger offset.

The second group was more concerned about the threshold risk issue. Examples were provided where, in the view of the interviewees, offsets were agreed for projects that significant environmental impacts that would normally be considered unacceptable (for example allowing an industrial plant in a Class A Nature Reserve). The offsets were set at the very end of the approval process where the Minister for the Environment was involved. In all these examples, interviewees expressed concern that an approval had been 'bought'. The use of offsets to addressed uncertainty was also discussed in this context, where it was considered that a proponent could get an approval for a project that has an elevated level of risk of significant negative environmental outcomes by trading-off this risk with an offset. In these cases the risk significant negative environmental outcomes has not changed and it was considered that the risk level should have been assessed on it merits in isolation. These interviewees argued that having offsets introduced early on in the assessment means that the proposed package can be considered on its merits at the same time, but separate from, the consideration of the proposal itself.

Clearly, the use of offsets in WA is contentious and there is a real institutional risk that unless the concerns raised by EIA practitioners are addressed the use of offsets will loose credibility and a tool with the potential to deliver significant environmental benefits will be lost. Most interviewees noted

that the lack of a proper legislative and policy basis for offsets, and ambiguity about when and how offsets should be raised and used in the EIA process are the key issue that need to be addressed.

## References

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