MINING, AGRICULTURE ECO-INNOVATION AND BIODIVERSITY OFFSETS IN THE GREAT BARRIER REEF: A SCIENTIFIC AND POLICY FRAMEWORK FOR BEST PRACTICE OPERATIONALIZATION

DRS MALIKA VIRAH-SAWMY, JENNIFER BEER, & REBECCA CROSS

Executive summary
A biodiversity offset strategy is being considered as a condition for development consent to offset the predicted impacts of a large infrastructure development upon the Great Barrier Reefs (GBR). Relying on offsets to achieve ‘no-net-loss’ of biodiversity requires a high level of certainty in their ecological integrity and feasibility where they are used to justify habitat destruction.

The proposed project builds on current work between BEES/ACSMP at UNSW, with the addition of WWF as a key partner. Its overall goals is to enhance sustainable mining and agriculture, by evaluating the potential of credits generated from agricultural best practice to offset the environmental impacts of large mining and associated infrastructure projects.

We will investigate benefits to water quality and other potential co-benefits that can be generated through a range of improved management practices (both farmer and industry driven), the limitations and incentives for adopting best practice, and the costs involved. This analysis will be performed both at the farmscape and catchment scales. A participatory approach will allow the project to investigate what is working, why, and for whom among farmers, with a secondary focus on the socio-cultural issues which impact the uptake of eco-innovations. Further, as the transition to sustainable agriculture requires whole farm change, rather than sporadic adoption of new practices, this project will also consider the level of awareness and involvement in revolutionary sustainable grazing programs, such as Holistic Management® and GrazingforProfit, amongst graziers in this landscape. Graziers in the Burdekin Dry Tropics (NRM) including adopters and non-adopters in a specific defined local catchment will be our target group (other target groups can be suggested).

Market based instruments in Australia have previously been applied to individual farms. Compensations or biodiversity credits are granted to farmers based on inferred rather than measured conservation gains (e.g. BioBanking, Victorian Bushbroker or Bushtender programmes). For the case of the GBR, where sedimentation from farming is the principal threat, there are obvious limitations to inferring or measuring conservation gains at individual farm levels. The project will therefore explore the benefits and constraints of reef rescue grants or biodiversity credits generated at farm versus local catchment scale. Also, as it is generally known that performance-based conservation works better when farmers themselves track each other’s behaviours and monitor their impacts, we will also explore feasibility of monitoring water quality using simple data loggers managed by farmers within a local catchment area to track the performance of practices on water quality in the local catchment. For example, is there a relationship between easily collected parameters such as water turbidity in local streams and sedimentation/nitrogen levels?

Combining this research with data from the federal government’s ‘Paddock to Reef’ monitoring and modelling programme, we will explore with farmers the feasibility of developing a metric which may include a range of parameters (expected adoption rates, influence of management practices on sedimentation reduction rates, and cost). Importantly, this participatory project has the potential to not only identify improved beef grazing practices, but to consider the feasibility of the scale of adoption and cost involved to offset mining practices. We will consider in particular the “offsetability” of large infrastructure planned in the GBR such as the port development at Abbot Point (taking into account sediment loads, biodiversity impacts, and scale and time components) in light of our findings on agriculture eco-innovation among graziers.
Our approach was based on some key findings from the report “Targeting value for money in Reef Rescue grants” as well as from the discussion paper on the Queensland Government Offsets framework.

Key findings that helps refine the project from the first report include:

- Lack of information about performance of land management best practices on water quality at farm level/local catchment area
- Lack of understanding of level of funding required to provide an incentive for land managers to change whole practices (not only single aspect)
- Lack of understanding of barriers to scaling management best practices to more landholders
- Lack of knowledge about other benefits of land management best practices, e.g. on productivity
- Lack of clarity on best market based instruments to deliver reduction in sedimentation (tenders, financial settlements, proponent-driven contracts)

Further, the Queensland Government Offsets framework –discussion paper was used to discuss some limitations with the proposed methods and data that will be needed:

- How do we define the level of financial settlement for an offset?
- What are the most cost-effective approaches to reduce the major threats to the reef?
- What are the performances of different improved management best practices on water quality?
- What metric to use for an offset at farm level/catchment area to measure no net impact or net gain of mining/infrastructure projects? For example, land ratio suggested in the policy document is largely insufficient as it does not address or provide quantifiable data concerning how the activities put into place actually enhance biodiversity?
- Should urban pollution be part of offsetting since there exist federal regulatory mandatory standards to reduce urban pollution – that is, under a counterfactual scenario for the future, should urban pollution not be considered as achievable through regulations and hence not be part of offset trading schemes?