



Applying adaptive management principles to publicly funded environmental programs

The Landscapes and Policy Research Hub reviewed the application, selection and evaluation processes used in the Australian Government's public environmental funding programs, with the aim of improving the ability to report on the impacts of the funding.

The research was funded by the Australian Government through the National Environmental Research Program (NERP), which supports science that informs environmental policy and decision making.

Key Research Outcomes

Following a review of project application and assessment processes used in the Biodiversity Fund and Caring for Our Country programs and a selection of funded projects, the following recommendations were made:

1. That publicly funded environmental programs adopt a modified adaptive management cycle (see figure) to guide proponents through a logical sequence of questions to link their goals to intermediate and ultimate outcomes.
2. That large projects are required to develop a monitoring program capable of measuring change in their project goal by submitting a monitoring design during the course of their project that specifies:
 - a. the degree of impact they expect to see in their goal (the effect size),
 - b. the natural variability in their goal or the means by which they will estimate that variability during the course of the project, and
 - c. The sample size or number of replicate sites to be monitored to measure change in the project goal, based on a) and b) above.
3. That partnerships be encouraged between project proponents and research groups, consultants or others skilled in monitoring design, and financially supported for a sub-set of large projects, to build capacity in monitoring design and implementation amongst environmental managers in Australia.

1. Why did we do this study?

The Biodiversity Fund and Caring for our Country (Monitoring) Project arose from a request by the Department of the Environment that the five NERP hubs assist in the design of monitoring programs for already funded projects. In response, the Landscapes and Policy Hub suggested that an additional approach to improving the ability to measure outcomes from funded projects would be to redesign the project-level application process as a series of steps based on the adaptive management cycle.

The aim of the project was to help achieve better NRM policy, program and project outcomes by developing principles and criteria consistent with Adaptive Management to assist departmental staff revise guidelines for proponents and the assessment of applications under future environmental funding programs.

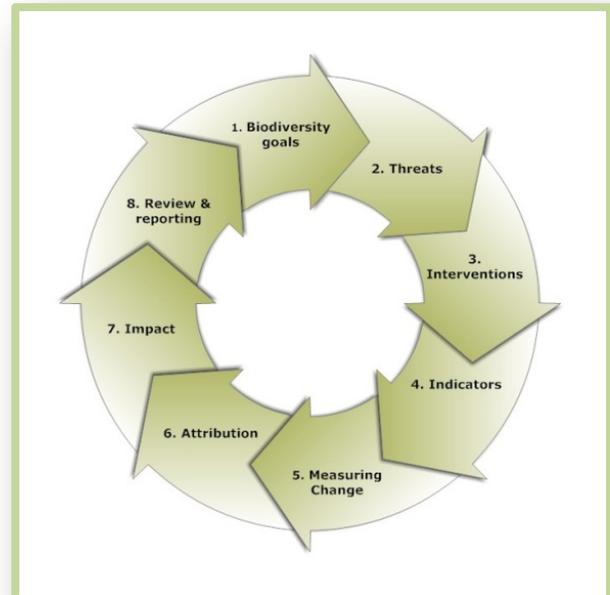


2. What did we do?

The team developed a conceptual model of the project application process based on the adaptive management cycle (see figure below). They then revised that model following a review of program-level goals and background material for applicants to the Biodiversity Fund and Caring for our Country programs.

They then tested the model against a selection of the original applications for completed projects that were considered by the department to be successful, and developed a set of guidelines for application forms for future funding programs.

Project-Level Adaptive Management Model



3. How did we do it?

This project entailed five key tasks:

1. **Consultation** with departmental staff to:
 - a) Clarify the existing goals and expected outcomes of the Biodiversity Fund and the processes used in project application and selection.
 - b) Establish criteria to be used in selecting ‘successful’ past projects for use as case studies in this analysis.
 - c) Identify the number of case study projects to be used in this analysis.
2. **Fit-for-Purpose Analysis:** examine the proposed adaptive management model to identify the theoretical and practical assumptions underpinning each of the steps in the model, consider elements not included, and refine the model prior to application.
3. **Road Test the Proposed Model:** apply the refined model retrospectively to a selection of ‘successful’ past projects to identify lessons from real world examples and build on their experience. This included a departmental workshop to discuss the analysis, project findings and their implications.
4. **Develop Guidelines:** formulate practical guidelines for project application and selection based on steps 2 and 3 above.
5. **Presentations:** Present the project findings to departmental staff through a workshop to seek feedback and refine the approach as required.

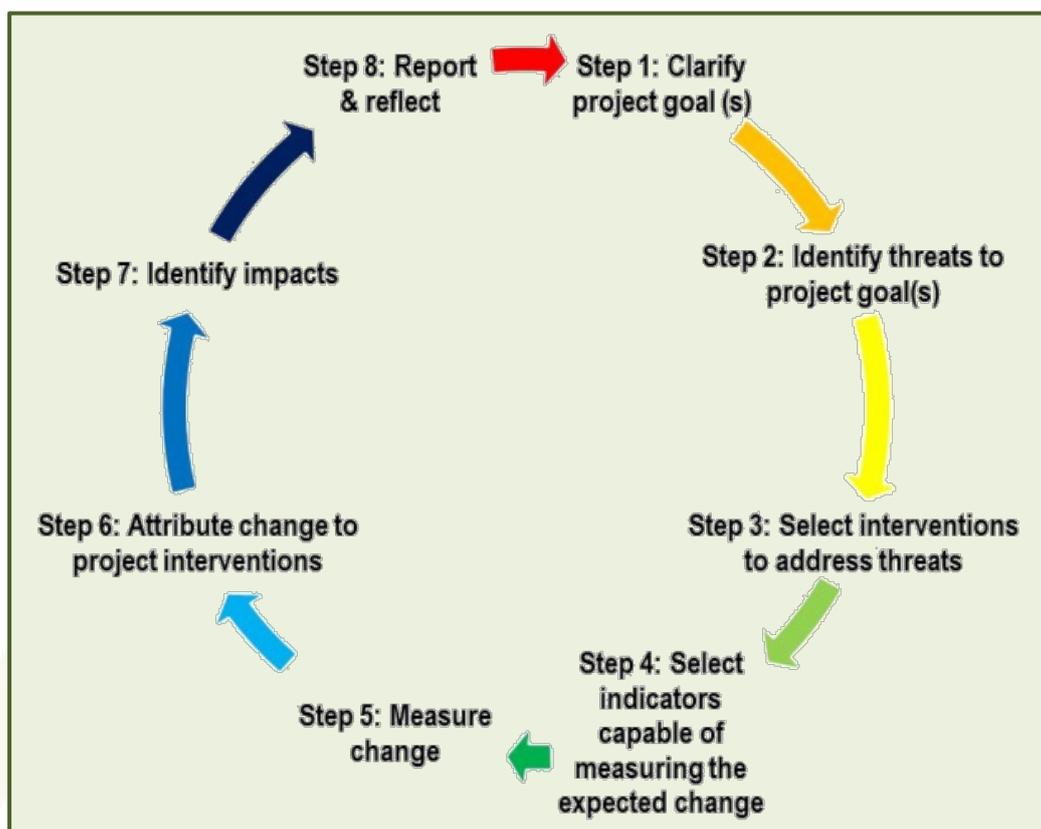
4. What did the results tell us?

The Project-Level Adaptive Management Model is based on the adaptive management cycle of 'Plan, Do, Reflect and Revise'. This basic structure leads project proponents through a series of questions to clarifying their goals, identify the threats to those goals, the interventions that are likely to manage those threats and how progress can be monitored and how lessons will be identified, reported on and shared. This process forces proponents to focus their efforts on well recognised biodiversity values such as species, communities, process or cultural values, and to think through the scale, timing, landscape context and assumptions behind their proposed interventions. This information should assist assessors estimate the likelihood of success of proposed projects

The single most challenging aspect of the process is monitoring design. To be able to unambiguously measure change as a result of an intervention requires proponents to know or be able to estimate three basic features of their goal:

- a. The degree of impact they expect to see in their goal, or the effect size they are after.
- b. The natural variability in their goal or the means by which they will estimate that variability during the course of the project
- c. The sample size or number of replicate sites to be monitored to measure change in the project goal, based on a) and b) above.

Project-Level Adaptive Management Model





5. Where to from here?

A key factor in the success of environmental programs is the capacity of environmental managers to design and implement statistically valid monitoring programs. The project recommended that to develop this capacity, environmental programs encourage and financially support partnerships between project proponents and research groups, consultants or others skilled in monitoring design, initially for a sub-set of large projects and eventually more broadly across the environmental management sector.

6. Who are the researchers involved?



Dr Nicki Mazur Is Principal Consultant with Envision Environmental Consulting and a visiting fellow at the Crawford School for Public Policy at the Australian National University.

Dr Andy Bosworth is a consultant with Cobalt Marine Resource Management.

Professor Allan Curtis is Professor of Integrated Environmental Management at the Institute for land, Water and Society, Charles Sturt University.

Professor Ted Lefroy (University of Tasmania) is Director of the Landscapes and Policy hub and leads the Communication and Knowledge Brokering Team

Where can I find out more?

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Further Reading:

Mazur N, Bodsworth A, Curtis A & Lefroy EC, (2013) *Applying the principles of adaptive management to the application, selection and monitoring of environmental projects*, University of Tasmania, Hobart, Tasmania.

About the NERP Landscapes and Policy Hub

The Landscapes and Policy Hub is a research collaboration that focuses on integrating ecology and social science to provide guidance for policy makers on planning and management of biodiversity at a regional scale. The research hub is developing tools, techniques and policy options to integrate biodiversity into regional scale planning.

The University of Tasmania hosts the multi-disciplinary research collaboration that is one of five research hubs funded to study biodiversity conservation by the [National Environmental Research Program](#) (NERP) for four years (2011-2014).

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