

Rural and Regional Affairs and Transport Senate Inquiry:

Identification of leading practices in ensuring evidence-based regulation of farm practices that impact water quality outcomes in the Great Barrier Reef

Great Barrier Reef Foundation Responses:

Four (4) Questions on Notice, Public Hearing 27 July

Question on Notice #1:

Senator GREEN: I'm quite happy for you to take this on notice, because I understand there are a lot of questions to get through. Of the \$201 million, do you know how much has already been spent versus how much has been allocated?

Ms Marsden: We do have those numbers, but I'll take them on notice so I can provide you with them.

Senator GREEN: Okay. Are you making that funding available through grants or loans or both?

Ms Marsden: Grants.

Senator GREEN: On notice, I'd like to know the number of grants that have been allocated, the money that's been provided and who the grants have been given to—the organisations involved. Sometimes the grant will be allocated to a group of organisations, so could you provide the actual partners in that group? What were the criteria for allocating those grants to those certain organisations? Also, what benchmarks do you have in place to assess whether those programs are achieving the outcomes that you've assigned? That breakdown would assist us to understand, in particular, where the money has gone and what assessment criteria went into deciding that. One of the issues that we've always had around the way this funding is allocated is that that would possibly be information that we would get from a government department. I'm hoping you'll understand that the more transparency the better for us, because we'll understand exactly where that money has been allocated.

Ms Marsden: Absolutely. Two weeks ago, we released our forward annual work plan for the 2021 year, and that says what funding we're allocating the prioritisation for water quality for this year. We can include that in that answer as well. It's so dynamic—and there's a large amount of money still to be spent. Or are you more interested in what we've committed in the past?

Senator GREEN: If you want to provide that, that would be helpful. What I'm interested in is not an allocation of funds to a program name but to which organisations it's going.

Ms Marsden: Yes, understood.



Response: In partnership with the major water quality program funders, the Queensland and Australian governments, the Water Quality component of the Reef Trust Partnership aims to make meaningful progress towards improved water quality for the Reef, support the sustainability of the agricultural sector, while at the same time improving the way we make change happen.

The five-year plan prioritises funding for proven, on-ground measures aimed at addressing priority pollutants – dissolved inorganic nitrogen (DIN), pesticides, and fine sediment. Around \$160 million is being invested through a series of targeted four-year regional programs focused on the highest priority catchments to maximise impact. At the end of June 2020, 8 out of 10 regional programs were underway, with \$50 million committed, which represents over a third of the total investment allocated to this activity.

Assessment Criteria

The criteria for allocating grants for projects were set out in the grant guidelines for each grant round, and varied depending on the objective of each round.

The Foundation has taken 3 different approaches to investment:

- Early investment projects – where we focused on maintaining capacity of on ground extension providers while the planning process for the Reef Trust Partnership’s Water Quality component was undertaken. Criteria also focussed on proven methods and proven providers.
- Regional programs – grants for projects totalling \$141m under the 10 regional programs. The criteria for these grants adopted the same three assessment criteria, which were
 1. cost-effectiveness of the approach (\$/t reduction at end of catchment)
 2. capability and experience of the applicant
 3. proven nature of the approach (including consideration of risks and sustainability of outcomes).
- Innovation program - different criteria were applied depending on the sub-theme, but broadly these related to potential to deliver a step change in how we implement water quality projects.

Monitoring and Evaluation

Projects funded under the Water Quality component are required to prepare a monitoring and evaluation plan, that is nested under the overarching Reef Trust Partnership’s Monitoring and Evaluation Plan, available at https://barrierreef.org/uploads/RTP_Monitoring%20Evaluation%20Plan_FINAL.pdf. These project-specific Monitoring and Evaluation plans include a range of indicators that may be relevant to a particular project, for example the area of land or length of stream bank where restoration activities have been undertaken, and/or the reduction in nitrogen, sediment or pesticide loads from the project.

All projects are required to provide regular (3 or 6 monthly) reports to the Foundation, in comparison to currently reporting annually under the Paddock to Reef monitoring program.

All projects funded under the regional programs are being required to report data on an ongoing basis to a custom-built data base, which will allow for tracking against targets, particularly against the overall project water quality improvement targets and related cost-effectiveness targets for the project.

Water Quality Grants Summary (as of 31 July 2020)

The table below outlines details of grants under the Water Quality program as of 31 July 2020. The Foundation is currently finalising assessment and contractual agreements for a number of grants for projects under the regional programs and would be pleased to provide an update to the Committee in the coming weeks that reflects these updates.

Reef Trust Partnership Water Quality Component: Grant Details for Early Investments				
Please Note: The information in this table is current as of 31 July 2020. The Foundation is in a significant contracting phase for this Component of the Partnership with new contracts for project partners being signed weekly.				
Project Name	Organisation funded and lead of the project	Summary	Other partner organisations	Budget
Project Bluewater	Farmacist Pty Ltd	This project reduces the runoff of pesticides into the Great Barrier Reef lagoon through the adoption of improved sugar cane farming practices. The project will directly engage over 70 growers, managing over 12,000 ha of land, in the catchments of Haughton, Pioneer, O'Connell Rivers, and Plane Creek identified as high priority in the Reef 2050 Water Quality Improvement Plan.	University of Queensland, Queensland Department of Environment and Science, TropWATER, Westwood Environmental, pesticide resellers, contractors, sugarcane growers	\$1,243,500
Project Pioneer	Resource Consulting Services Australia	Project Pioneer promotes the adoption of regenerative grazing operations to increase ground cover in grazing lands and reduce sediment in runoff to the Great Barrier Reef. In addition to the improved water quality entering the waters of the Great Barrier Reef, other environmental outcomes include reduction in carbon loss from soils, increased biodiversity on-farm, particularly soil and aquatic life, and increased landscape resilience to the effects of climate change.	Maia Technologies, Stacey Wordsworth, producers, Farm Map Analytics, WWF, graziers	\$2,899,500
Innovative Gully Project (Strathalbyn) Phase Three	Greening Australia	This project aims to reduce the amount of sediment discharging to the Great Barrier Reef lagoon by approximately 3,200 tons per annum through remediation of alluvial gullies by using established techniques. In addition, the project will aim to pilot the Reef Credit system and investigate how Reef Credits could be used to fund gully remediation works and ongoing maintenance requirements.	Office of the Great Barrier Reef, Griffith University, Rock-it science, graziers	\$2,092,040
Cane to Creek 2.0	Sugar Research Australia	Works on farm with small cane grower groups to address nitrogen and pesticides. The program breaks down the barriers between scientists and growers, maximises peer-to-peer learning opportunities and improves understanding of the drivers of water quality impacts.	Wet Tropics Sugar Industry Partnership, Queensland Department of Agriculture and Fisheries, CANEGROWERS Smartcane BMP program, sugarcane growers	\$2,226,806
Project Catalyst	Catchment Solutions Pty Ltd	Supports a network of cane farmers in the Reef catchments to improve farming practices to reduce nutrient run off to the Reef. This is achieved by focusing on soil testing, nutrient management plans and implementation of controlled traffic management systems (reducing soil compaction by confining heavy machinery to permanent traffic lanes).	The Coca Cola Foundation, WWF Australia, Bayer Australia Limited, Coca Cola South Pacific, sugarcane growers	\$2,407,751

Cane Changer project	Qld Cane Growers Organisation Ltd	This behaviour change program uses co-design principals to elicit improved practises through accreditation in the SmartCane Best Management Program and other forms of commitment towards improved practices. This phase of the project will build on the existing program in the Wet Tropics and initiate new programs in Mackay, Burdekin and Southern Regions.	Evidn, sugarcane growers	\$1,413,500
Reefwise Grazing of Burdekin Rangelands	NQ Dry Tropics	This project will produce dedicated and specific education, training, capacity building and incentives that will take 12 grazing landholders on a progressive journey towards techniques that proactively manage stock grazing pressure and minimise potential for declining land condition leading to reduced sediment runoff. The project will also result in a further 50 landholders using increased knowledge and skills to apply management changes to improve the quality of water discharged from their property.	Queensland Department of Agriculture and Fisheries, Contour Environmental and Agricultural Consulting, Soil land Food, Southern Cross University, Forage Labs Australia, RCS, Northern Australia Veterinary Group, Bush Agribusiness, Grazing naturally, Low Stress Stickhandling, Agricultural Information and Monitoring Services, graziers	\$659,984
An Evidence Based Approach to Improving Water Quality in the Barratta Catchment	BRIA Irrigators	Farmer (cane) led project which raises awareness and drives practice change through improved fertiliser application, modifying pesticide type and quantity and improving irrigation efficiency.	Queensland Department of Agriculture and Fisheries, Farmacist, Burdekin Productivity Services Ltd, sugarcane growers	\$900,520
Gully restoration, grazing	Mary River Catchment Coordinating Committee	Addresses sediment discharge to the Great Barrier Reef lagoon through gully restoration on grazing land. The project will also work with graziers to increase awareness and actively manage lands that are susceptible to erosion through the adoption of best land management practices.	Graziers	\$646,500
Early Career Extension Officers	Qld Farmers' Federation	This project will increase the delivery capacity related to agronomic extension by training early career extension officers (agricultural experts) in practices relevant to addressing sediment, nitrogen and pesticide runoff. The project will involve a 12-month placement of up to eight early career extension officers.	Office of the Great Barrier Reef	\$1,258,768
Reef Alliance Project, Phase 2	Qld Farmers' Federation	Supports cane farmers and graziers by using one-to-one agricultural experts (extension officers) to move 462 land holders, covering 209,750 ha, towards best practice to reduce sediment, nitrogen and pesticides.	Terrain NRM, Wet Tropics Sugar Industry Partnerhsip, NQ Dry Tropics, Reef Catchments Ltd, Fitzroy Basin Association, Burnett Mary Regional Group, Qld Cane Growers Organisation Ltd, sugar cane growers, graziers	\$3,500,000



Reef Alliance Project Phase 2 – Extension	NQ Dry Tropics	An extension of the Reef Alliance Project 2 in sugarcane and grazing in the Burdekin	Sugarcane growers, graziers	\$1,074,532
Reef Alliance Project Phase 2 – Extension	FNQ NRM - Terrain	An extension of the Reef Alliance Project 2 in sugarcane in the Wet Tropics	Wet Tropics Sugar Industry Partnership, sugarcane growers	\$1,354,000

Reef Trust Partnership Water Quality Component: Regional Programs				
Role	Organisation	Other partner organisations	Total budget allocated	
Program manager/ Partnership Coordinator: Mackay-Whitsunday Regional Program	Reef Catchments Ltd	Farmacist, Mackay Productivity Services Ltd, Catchment Solutions, CANEGROWERS Mackay, Green Collar, Liqueforce, Traditional Owners, local sugarcane farmers	\$2,250,190	
Program manager/ Partnership Coordinator: Lower Burdekin Regional Program	NQ Dry Tropics NRM	Sugar Research Australia, Farmacist, Burdekin Productivity Services, Green Collar, Traditional Owners, local sugarcane farmers	\$1,665,233	
Partnership Coordinator: Fitzroy Regional Program	Fitzroy Basin Association	Greening Australia, Verterra, Alluvium, Catchment Solutions Pty Ltd, Green Collar, Traditional Owners, local graziers and grain growers	\$972,565	

Question on Notice #2:

Senator ROBERTS: Thank you both for appearing today. You said up-front: 'Climate change is unequivocally the No. 1 threat to the reef.' Could you provide me—on notice if need be—with the specific location of the empirical scientific data in a format that proves cause and effect, that proves your statement. I'd like to know the title of the publication, the report, the book and also the page numbers for that data and the framework proving cause and effect.

Ms Marsden: I'm very happy to take on notice why the foundation has reached that conclusion.

Senator ROBERTS: I'd like to know the specific basis on which you make that statement.

Ms Marsden: I'm happy to take that on notice.

Response #3:

The Great Barrier Reef Foundation supports position statements and recommendations on this issue from the UN's [Intergovernmental Panel on Climate Change](#) and the [Great Barrier Reef Marine Park Authority](#).

Specifically:

- The UN's Intergovernmental Panel on Climate Change's Special Report on the Ocean and Cryosphere in a Changing Climate
- The Great Barrier Reef Marine Park Authority's Position Statement on climate change, released 18 July 2019 and available on their website: www.gbrmpa.gov.au/our-work/threats-to-the-reef/climate-change.



Question on Notice #3:

Senator McDONALD: This is terrific because, if you've been listening to my questions today, a lot are around extension. This sounds like the angle I've been chasing. Would you be able to give me now or could you give me on notice the number of farmers' properties that you've been able to get direct contact with and what outcomes you've been able to measure?

Mr Speed: We can take that on notice.

Response:

As of 30 June 2020 Note: engagement figures from some projects underway have not yet been reported. The three regional programs underway are expected to increase these numbers significantly.			
Number of landholders engaged through Reef Trust Partnership Water Quality projects (broad engagement, such as attending events and training)	Number of landholders directly engaged through Reef Trust Partnership Water Quality projects: i.e. one-on-one support, on-farm innovation trials, or water quality trials	Number of landholders that have demonstrated improved water quality practices (based on the Paddock to Reef framework)	Area of land that has demonstrated improved water quality practices (based on the Paddock to Reef framework)
1199	523	210	289,165 ha



Question on Notice #4:

Senator McDONALD: Okay. I would be interested for you to take that on notice, given the focus that the foundation has, if you think that the only area to address is agricultural practices and that the 550,000 people who live in the region have no impact.

Mr Speed: I would not say that that is the only area to address. As I said, our starting point was to evaluate the potential interventions that were available to us to fund, and the relative cost effectiveness of those, as well as the extent to which they were available. Most of the interventions in the urban setting—we did look at things like water sensitive urban design, better treatment of stormwater, as well as wastewater treatment upgrades—are an order of magnitude or even several orders of magnitude greater as an investment to treat pollution, compared with the sorts of interventions that we're looking at.

Senator McDonald: So you'll be able to provide me on notice some analysis of what those proportionalities are and where your budget is going?

Mr Speed: Yes.

Response:

The overall approach to investment of \$201 million under the Reef Trust Partnership Water Quality component is based on work undertaken by Alluvium Consulting, which identified the relative cost-effectiveness of different options for reducing the amount of nitrogen, fine sediment, and pesticides, based on the cost (\$) per unit (e.g. kg or t) to reduce the end of catchment load.

The full report can be found here: <https://www.barrierreef.org/uploads/Alluvium-2019-Effective-and-Efficient-Pathways-for-Investment-in-Improved-Water-Quality-in-the-GBR-Web-1.pdf>.

Approaches related to urban impacts, such as water sensitive urban design or wastewater treatment upgrades, are consistently shown to be significantly less cost effective than that other alternatives. For example, working with cane farmers to improve practices from a “C” to “B” status can deliver a reduction in dissolved inorganic nitrogen (end of catchment) for between \$43 and \$440 per kilogram of DIN. (The cost varies between catchments due to hydrology, climate, and other factors). In contrast, wastewater treatment upgrades will deliver reductions for between \$8,000 and \$13,000 per kilogram.

Ultimately, decisions on how funds will be invested are based on the proposals submitted as part of the open grant rounds, and an assessment of the cost-effectiveness of those proposals.

We also note that according to the 2017 Scientific Consensus Statement, urban areas (which make up around 0.7% of the Reef Catchments by area) contribute around 9% of the anthropogenic dissolved inorganic nitrogen load and less than 1% of the total fine sediments.

