

Good Afternoon

Following up on questions from Senators McDonald & Waters at the Senate Inquiry held on 28<sup>th</sup> July 2020, please find attached Question on Notice on Project 25.

It is estimated that the cost would be \$3 million per catchment subject to the size of the catchment. Full costings are available if required.

Regards  
Sheriden

**Sheriden Morris**

**MANAGING DIRECTOR:** Reef and Rainforest Research Centre Limited

Attached:       Canegrowers Cairns Region – Project 25 Ethos  
                      RRRC Project 25

4<sup>th</sup> August 2020

## Project 25 Ethos

Prepared for the Senate Rural and Regional Affairs and Transport Committee.

CANEGROWERS Cairns Region would like to take this opportunity to explain the philosophy behind Project 25 (P25) and to emphasise that this project has developed into much more than the small- scale water monitoring project as it was recently referred to.

The success of this farmer driven real time water monitoring project was originally built around a framework aimed at validating the modelling. As trust between stakeholders became established this platform was expanded to embrace all the following 5 Pillars.

1. **Sampling and analysis**
2. **Education**
3. **Acceptance and understanding of the results**
4. **Removing the blame game**
5. **Practice change**

**Sampling and analysis:** Growers worked with researchers to identify suitable sites across the catchment. Landholders took “ownership” of the monitoring equipment, taking responsibility for the trailers in time of floods, undertaking croc watch for snap sample collection, understanding the worth and value of the equipment while using their knowledge and experience to work with the science to identify the most useful sampling spots in the sub-catchments.

**Education:** The Researchers facilitated the learning process over a period and in stages. The Growers in turn continue to educate the scientists on the why and when of sugar cane and banana production and the need to maintain productivity and profitability while striving for improved water quality outcomes. Workshops, Young Grower Groups and Peer to Peer learning events are all utilised as platforms for further education.

**Acceptance and understanding of results:** With Pillar 2 established this occurred as a matter of fact.


**Removing the blame game:** Strategically placed sampling spots have allowed the stakeholders to differentiate between rain forest, urban, sugar cane and banana’s runoff.

**Practice Change:** P25, in its entirety has created a platform and driver for practice change within the catchments. SmartCane BMP uptake and accreditation clearly demonstrate this.

In closure, the success of this project should not be underestimated, and we would welcome the committee on farm to engage with stakeholders firsthand.



Sarah Standen  
Regional Manager



Stephen Calcagno  
Chair

# Project 25

## **Briefing Paper for the Senate Rural and Regional Affairs and Transport Committee**

*Inquiry into the identification of leading practices in ensuring evidence-based regulation of farm practices that impact water quality outcomes in the Great Barrier Reef*

**3 August 2020**

### Summary

Over the last five years, 'Project 25' has successfully implemented a catchment-wide, farmer-driven, real-time water quality monitoring, engagement and pollution mitigation program in the Russell-Mulgrave Catchment adjacent to the Great Barrier Reef (the Reef).

The pilot project was developed to respond to landholder concerns regarding (1) the validity of end-of-catchment water quality monitoring and modelling and (2) a general concern that they were being attributed pollution loads that resulted from other sources.

Project 25 uses a 'bottom-up' approach to water quality monitoring to gain the trust and ownership of landholders. Local canegrowers steered the program design, research and extension efforts. Efforts were focussed on sub-catchment pollution hotspots. The key pollutant of concern was dissolved inorganic nitrogen (DIN) from fertiliser use.

The project succeeded in not only identifying where and when DIN was lost in large volumes from the catchment but also engaging leading canegrowers in shepherding the environmental future of the catchment. The pilot concludes Dec 2020, with a final report that provides a road map for novel management responses.

### Background

The joint Australian-Queensland Government *Water Quality Improvement Plan 2017-2022* identifies the Russell-Mulgrave catchment as a high priority for DIN reduction. The plan has a target of 70% reduction in end-of-catchment DIN loads by 2025 (a real reduction of 300 tonnes). It is well recognised that achieving this target will require approaches 'outside the box'.

The 5-year \$1.2 million pilot was funded by the National Environment Science Program. A stakeholder technical steering committee was established comprised of Canegrowers, banana producers, TropWATER (JCU), the Reef & Rainforest Research Centre (RRRC), and CSIRO. The Qld Dept of Agriculture and Fisheries provided field support.

### Method

Standard approaches engage the most 'willing' landholders regardless of their footprint within the catchment. Project 25 strategically sought the involvement of the largest and most influential landholders (together farming >50% of the sugar cane in the catchment) who are recognised as leaders in their community and can engage other growers, many of whom would not normally participate in voluntary initiatives. The co-design platform provided comfort to the growers that their views and concerns would be addressed – creating the all-important trust framework.

These leading growers worked with researchers to identify sampling sites that reflected a range of different catchment land-uses (native forest, bananas, sugarcane, urban), allowing specific sugarcane DIN contributions to be differentiated from other sources (a key desire of the local cane

industry). Real-time water quality sensors and associated telemetry were trialled and installed in 11 nitrogen-critical 'hot spots'. This data is fully integrated with CSIRO's Digiscape's Programme, whose 1622 app enables landholders to access real-time data for DIN running off their land and other comparable areas (townships and rainforest sites) during the same rain event.

Another unique aspect of the project is the emphasis on the social drivers of change. CSIRO social scientists conducted interviews with growers, local extension staff and scientists to benchmark attitudinal change and perceptions surrounding water quality science.

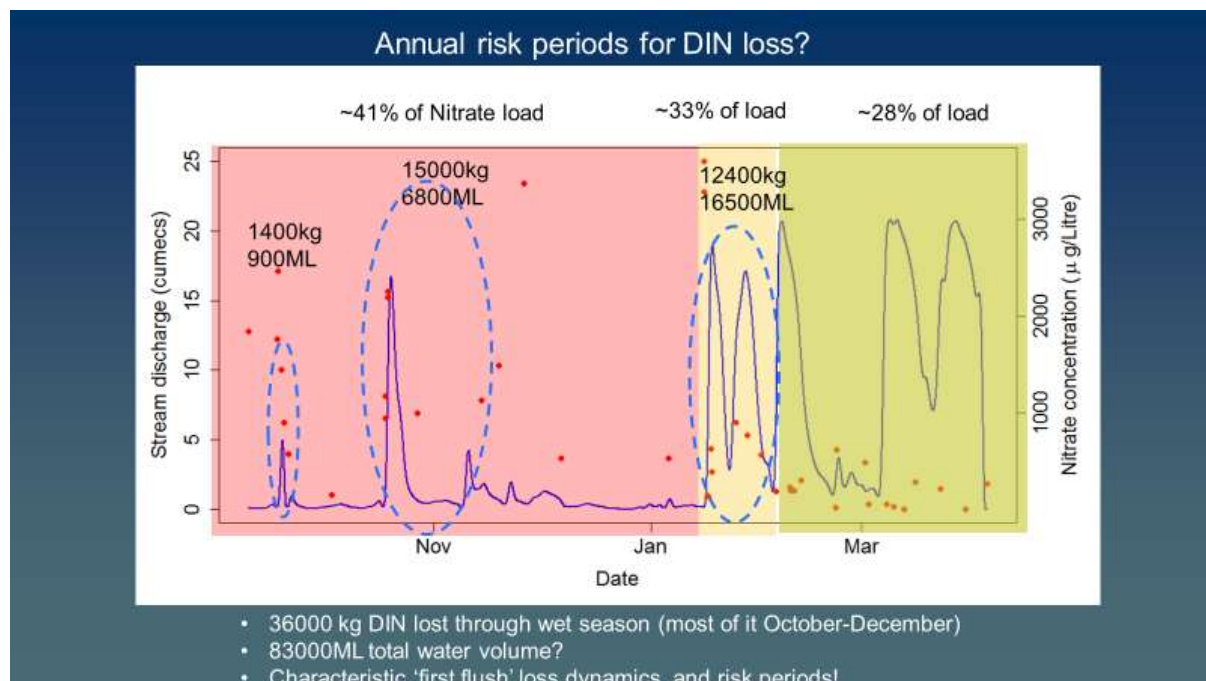
## Measures of Success

The project has two measures of success: (1) building trust frameworks between scientists and farmers to influence behaviour change to reduce applied nitrogen, and (2) the innovative use of 'whole of catchment' functions such as using existing floodplain drainage networks for water quality improvement.

## Results

The project demonstrated that there are **distinct areas** of sugar cane production that contribute greater quantities of DIN runoff than elsewhere in the catchment (the 'hot spots'). Farmers in these areas are now receiving targeted extension support to assist practice change.

The project also demonstrated that there are **distinct times** when there is a greater quantity of DIN runoff. Between 40-50% of catchment DIN export was found to derive from the first 2-3 significant rainfall-runoff events after the main sugarcane fertilising period (see Figure below).



The Russell-Mulgrave Catchment has >1,000 kms of constructed drains that rapidly carry high DIN load 'first flush' events to the sea. Retention of this 'first flush' water would greatly improve water quality outcomes, but are overlooked in the current approach to GBR water quality management.

## Management Implications

GBR water quality improvement focuses on demonstrating water quality issues to growers via intermediaries and communication products. This approach has demonstrably failed to convince enough farmers that change is required. In Project 25, scientists work directly with farmers over several years, from co-designing monitoring to developing engagement and extension strategies. This has built the trust framework that has led to improved understanding and acceptance of the science, greater willingness to adopt recommended practices and a willingness to utilise other complimentary approaches such as retaining first flush events in their drainage networks. This collaborative and mutually-respectful approach has engendered a positive rather than combative relationship where farmers and scientists speak freely and find common ground on which to move forward.

For further information on Project 25 technical and communication products - see

<https://nesptropical.edu.au/index.php/round-2-projects/project-2-1-7/>

### **For more information:**

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