

North Queensland Conservation Council Inc.  
114 Boundary St, Railway Estate Qld 4810  
PO Box 364, Townsville City Qld 4810  
coordinator@nqcc.org.au  
Ph: 0406 421 061

**8 July 2022**

**To: Senator Nita Green MP  
Special Envoy to the Great Barrier Reef**

**Re: Opportunity for Improving Water Quality in the GBR through  
enabling water-efficient irrigation in the Lower Burdekin**

Dear Senator Green,

We would firstly like to congratulate you on your recent appointment as Special Envoy to the Great Barrier Reef.

The Lower Burdekin is the major catchment along the North Queensland coast that supplies nutrients to the Great Barrier Reef. Establishing a program to establish water-efficient irrigation in the Lower Burdekin would enable broadscale adoption and demonstrate to the world that Australia is taking concrete action for the health of our Reef. This is a complex activity, incorporating the mandates of several Ministers.

North Queensland Conservation Council (NQCC) has been reviewing proposals new dams and weirs on the Burdekin. As a regional conservation council, we are primarily concerned for the long-term health of our natural environment, and we advocate for an ecologically sustainable approach to all development – particularly that which has the potential to threaten the long-term health of invaluable ecosystems like that of the Great Barrier Reef World Heritage Area.

**IMPROVING WATER QUALITY OUTCOMES FOR THE GBRWHA**

Current dam and weir projects proposed for the Burdekin River will add, by their estimation, more than 128, 000 ha of irrigated agriculture, adding to the existing 95,600 ha in the Lower Burdekin. This would be occurring at a time when great efforts are being made to reduce the flow of nutrients and other pollutants from land-based agriculture into the GBR<sup>1</sup>.

Agriculture production in the Burdekin, with its high levels of nutrient, pesticide and irrigation inputs, has been the source of major environmental impacts.

The 2016 Great Barrier Reef Water Science Task Force identified the Burdekin Basin as one of the more serious sources of agricultural pollution into the Great Barrier Reef, ranking the Wet Tropics and Burdekin regions as the priority for reducing nutrient run-off, the Burdekin and Fitzroy regions as the priority for reducing sediment run-off and the Lower Burdekin and Mackay Whitsunday regions as the priority regions for reducing pesticide run-off.

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<sup>1</sup> Hells Gates Dam – 6,000 ha; Urannah dam - 25,000 ha; Burdekin Falls Dam Raising – 15,000 (estimated); Big Rocks Weir – 3,000+ ha; Bowen Pipeline – 40,000 ha

Irrigation outflows maintain groundwater flows into the Bowling Green Bay Wetlands, a Ramsar site, all year. This fundamentally changes the seasonality of this habitat, resulting in choking weed growth in the area, affecting reproduction of commercial and sport fishing species, including barramundi and mangrove jack.



**Fig 1.** Bowling Green Bay (with Cape Bowling Green sand-spit on right)

The Reef 2050 Plan has provided incentives to farmers to invest in efficient irrigation and fertiliser-application practices. This has established best practice models for these practices but, to date, has failed to achieve broadscale application (~40% of area).

The next phase of the Reef 2050 program is currently under consideration. The earlier phases of Reef 2050 had water quality as its focus, with farmers as the factors in need of change. A program to establish Modern Water-Efficient Irrigation Precinct in the Lower Burdekin (see below) would be aiming for the same changes.

However, it would be more farmer-centric and sustainable by placing productivity, improved livelihoods, and water-efficiency as its articulated target, with the public funding for the program justified by the environmental services the farmers provide. It is thus far more likely to resonate with farmers and result in broadscale adoption.

## **MODERN WATER-EFFICIENT IRRIGATION PRECINCT IN THE LOWER BURDEKIN**

Farmers in the Lower Burdekin face a range of immediate issues:

- Rising water table and salinisation of soils. Water tables have risen from 10m to 2m and less, due to high levels of irrigation since the Burdekin Falls Dam made this possible in 1988;
- Production costs are rising rapidly for both pumping and fertilizer;
- The Lower Burdekin faces increasing competition as other countries shift towards high tech production systems (e.g., Brazil).



**Fig 2.** Open channel manual irrigation in Lower Burdekin

The establishment of a **Modern Water-Efficient Irrigation Precinct in the Lower Burdekin** would address both the production and environmental issues together. This would entail;

- Installation of tensiometers to measure soil moisture;
- Automation so water is applied according to crop needs, as per growth stage; and
- Changes to the architecture of cane field (where necessary).

This would directly address the above production issues and at the same time result in improved water quality in the GBRWHA.

From information provided to NQCC by Canegrowers Burdekin and Sugar Research Australia, the basic investment costs for such systems would be in the order of \$4000 - \$8000 per ha (or \$320 - \$800 million across the 80,000 ha in the Lower Burdekin) and could save 120,000ML. By comparison, the estimated cost of raising Burdekin Falls Dam is \$500 million and would add an estimated 150,000ML of water to the current Burdekin Falls Dam storage, without providing additional productivity or environmental benefits.

In the process of its assessment of issues facing the Burdekin over the last two years NQCC has engaged in dialogue with key stakeholders in the Lower Burdekin to find win-win solutions for the environment and farmers. These include - irrigators: Lower Burdekin Water and the BRIA; cane farmers, through the Canegrowers Burdekin board; and researchers from Sugar Research Australia. These groups are already working towards the above and express great interest in such a program.

These groups, along with various government agencies and researchers including the Australian Institute for Marine Science (AIMS), the Great Barrier Reef Marine Park Authority (GBRMPA) and others,<sup>2</sup> have been brought together in the **Burdekin Water Futures Group** formed by the initiative of the Mayor of the Burdekin Regional Shire, Ms Lyn McLaughlin. This would be the key group to engage with in initiating such a program.

#### **PROPOSED ACTION**

Funds under consideration for dam construction in Queensland and the Reef 2050 Program could be redirected to funding the establishment of a Modern Water-Efficient Irrigation Precinct in the Lower Burdekin, initially funding an appropriate core group (such as the Burdekin Water Futures Group) to conduct its own detailed business case.

**We propose that funds currently allocated for water infrastructure in regional Queensland (p. 147 of Budget Paper #2) be made available for a detailed business case on a Modern Water-Efficient Irrigation Precinct in the Lower Burdekin. As a first step, we would encourage initial discussion with stakeholders in the Lower Burdekin, such as the Burdekin Water Futures Group.**

The chair of our Burdekin Basin Subcommittee, Mr John Connell will be in Cairns from 13 – 15 July for a JCU Research and Ethical Development conference. He would be available to brief you and your staff in Cairns over this period and will contact your office to try to arrange this (his contact details can be found below).

Yours sincerely,



Crystal Falknau  
Coordinator  
North Queensland Conservation Council  
coordinator@nqcc.org.au  
0406 421 061

#### **Alternative contact:**

John Connell  
Burdekin Basin Subcommittee Chair  
North Queensland Conservation Council  
John.connell@jcu.edu.au  
0424 899 623

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<sup>2</sup> North Queensland Dry Tropics (NQDT)

Centre for Tropical Water and Aquatic Ecosystem Research (TropWater)

Burdekin Bowen Integrated Floodplain Management Advisory Committee. (BBIFMAC)