

Agricultural Competitiveness Green Paper Submission

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Name of Organisation/Individual

Capricorn Conservation Council Inc.

What are the top policies from the Green Paper that the Government should focus on in the White Paper and why?

Protection of biodiversity, soil health, water quality, salinity risk management, transition to crop/products and products suited to increased climatic variability.

What policies from the Green Paper don't you support and why?

Damning rivers; ecological connectivity/fish passage lost, nutrient flow to ocean disrupted, loss of important riparian corridors (often the only remnant vegetation since the era of broad scale clearing; decades of significant government and private landh

General Comment

Dams and Weir conditions favour water stratification in summer and the growth of algae and development of algal blooms; The still waters in weir pools are less biologically productive than natural river channels, as native species adapted to diverse and free-flowing stream conditions are disadvantaged; Researchers (Fabbro, L. CQU) with long term knowledge of the microbial life of the Fitzroy have noted that there are alarming changes in the range and toxicity of cyano-bacteria over the past couple of decades. Dr Fabbro has presented reports to the Fitzroy Water Quality Advisory Group and the CQ Mine rehabilitation Group of increased potency of neuro-toxins from some previously unobserved forms of blue-green algae and notes that one of the biggest single threats to aquatic ecosystem health is reduced flows, and anoxic 'dead zones' from colder, deep storage areas. Need for more for peer reviewed research into the whole of nutrient / food web.

Riparian vegetation is drowned in the weir pool or killed by water-logging in low-lying areas of adjoining floodplains. Previous vegetation studies and maps indicate the over a hundred kilometres of riparian vegetation would be permanently lost. Most riparian species have the unique specialised soil and moisture preferences and can't therefore be rehabilitated, replaced or effectively offset.

Inundated dead vegetation produces Methane a significant greenhouse gas adding to the negative feedback loop for accelerating climate change (e.g. higher temperatures, greater evaporation, reduced rainfall interspersed with more extremes of drought and flood. Mass fish kills in the Fitzroy following ex-cyclone Oswald were attributed to the amount of rotting vegetation entering the stream. The impact of increasing the risk of eutrophication needs to have a greater priority.

Trees and shrubs which provide food and shelter to wildlife, cool shade, root mass and fallen branch habitats for aquatic life, will not grow in the 'tidal zone of the weirs' pondage. The series of floods

since 2008 (particularly 2010-11) appear to have killed a high percentage of riparian and floodplain trees.

Weirs act as a trap for sediments, nutrients and pollutants; The Fitzroy Basin has received a 'C' rating for ecological water quality values (Fitzroy Partnership for River Health).

6. Invertebrate and detritus drift is reduced, reducing biological productivity and diversity below weirs; The Lower Fitzroy, downstream from the highly retained Dawson and Mackenzie Rivers is in a relatively natural condition until the upper limit of Eden Bann. The proposed Rookwood Weir would eliminate the 100s k system of sand and gravel riffle zones critical habitat for Fitzroy Turtle and food sources for many others. Converting the majority of the remaining 'natural' rivers to two long, deep, cold mostly still water would reduce not add value to food security.

7. Weirs obstruct native fish migration and reduce native fish populations; the relatively stable conditions in weir pools give alien species, such as carp, (and Tilapia as recently discovered to have infested the Fitzroy Basin) of an advantage over native species; Baseline studies of the diversity of the Fitzroy system prior to the Fitzroy Barrage and Eden Bann Weir appear to be lacking, but there is strong anecdotal evidence of a severe decline in biodiversity with catfish becoming the predominate species. There have been several attempts to improve the slotted fish passage on the Barrage and the loch on Eden Bann and there is currently an assessment being made into a western floodplain Barrage by-pass to enable fish passage in minor floods.

Weir pools may affect groundwater systems by maintaining artificially high water levels, resulting in groundwater mounding; inundation of surrounding areas destroys flora and fauna habitat, including that of threatened species; potential replacement habitats for such a length of river need to be

9. Salinity risk mapping of the geological forms and aquifers in the Lower Fitzroy showed extreme potential for massive movement of salts and leaching into upper ground water layers, stream and wetlands. Risk assessments for ground and surface water dependant ecosystems in the areas of direct weir inundation plus the surrounding landscape from altered hydrological pressures is essential.

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Dams and Weirs accumulate sediments and prevent their downstream flow, resulting in erosion and scouring downstream of the weir;

Constant level of discharge from weirs can result in geomorphologic changes to rivers, tending to make them wider and shallower; The Fitzroy's alluvial plains have historically been highly dynamic. The 2010-11 floods, with the record flood levels in its tributaries, caused widespread floodplain slumping hundreds of metres either side of the riparian zone and secondary and tertiary natural flood levees.

Dams and Weirs alter temperature regimes downstream, resulting in an adverse impact on native flora and fauna.

Economics – Negative Externalities Previous proposals, such as the Fitzroy Industry Infrastructure (FIIS) and Fitzroy Agricultural Precinct (FAP), did not proceed because of economic realities; no investors in industrial scale feedlots and associated irrigated (grains and fodder) cropping came forward to purchase water harvest licences and neither did Gladstone industrial users the most likely purchasers of high value (cost) water users. The Awoonga Dam, the ecological connectivity of which has already been lost, has since remained high enough to meet current urban and industrial demands and there is speculation about adjustments to the spillway which might increase supply and (alleviate dam safety concerns). A cost benefit study is needed to compare the environmental, social and economics of the LFIP, which would completely destroy the residual connectivity of the lower Fitzroy, with options such as:

- a) Improved water efficiency for urban, industrial and agricultural use (Fitzroy and Boyne catchments, and possible links)
- b) Competitive water price analysis between urban, industrial and agricultural users – i.e. just as irrigated sugar cane growers have found that the increasing cost of water, higher power charges for pumping and expensive irrigation infrastructure is reducing their viability, graziers, grain and fodder growers may find they cannot match industrial and urban users on affordability of water. (Trials of irrigated Leucena for accelerated protein gain in cattle are yet to prove their economic worth and environmental value.)
- c) The level of pre-commitment to purchase water from the LFIP storages need to be assessed.

Alternatives to LFIP weirs such as intensive horticulture using existing supply and with potential for increasing flood harvesting coupled with efficient use. (total water cycle management)

e) Because of the paucity of soils for intensive agriculture and the high risks of raising the saline water tables on irrigated Fitzroy alluvial floodplains, greenhouse/nursery/vertical horticultural options could be more productive and have smaller ecological and GHG footprints than broadscale cropping, industrial scale feedlots (FIIS/FAP suggested three or more cattle feedlots of 15,000 head capacity each, within 500 metres of the riparian corridor). A thorough agribusiness study is needed before the LFIP receives approval simply on technical grounds; otherwise the weirs will become 'stranded 'assets' with negative consequences for river health, and a long term burden on taxpayers. An independent economic analysis is required.

Downstream implication of potential uses and users of water: For example in relation to the previously proposed feedlots nitrogen can leave manure and enter the atmosphere as ammonia gas. Ammonia washed from the atmosphere in rain can harm natural ecosystems by over-fertilising them with nitrogen. Ammonia can combine with other gases or particles in the air and still be small enough to be inhaled. This can potentially cause human health problems.

- a. Odour, noise, dust generation, fly plagues, increased truck traffic
- b. Could have the ability to affect surface and groundwater

c. Animal welfare issues, heat stress, Loss of amenity, Water quality (excess nutrients in the form of manure can cause algal blooms)

g) Great Barrier Reef (World Heritage Area) is mentioned as being 300k downstream of the project. The Strategic Assessment of the GBR WHA arising from the UNESCO World Heritage Committee's review clearly refers to the need for better manager of the whole of the GBR-WHA zone; that is the whole of catchment.

h) Consultation with such groups as the Capricorn Coast Local Marine Advisory Committee should be mandated. This is particularly important given the indicators in the GBR Strategic Assessment (and expected to be further illustrated in the GBR 2014 Outlook Report) which show that the southern GBR has the most significant amount of loss of coral and is in steepest rate of decline.