



**ADVISORY COMMITTEE
for the Waikato
REGIONAL ENVIRONMENT**



I appear on behalf of the Advisory Committee for the Regional Environment (ACRE) and Go Eco. This presentation supplements ACRE's submissions 1 and 2, which identified specific changes sought in particular sections of the plan. This submission is a joint submission from ACRE and Go Eco because our organisation's views coincide in this area. We do not and cannot add to our specific recommendations on PC 1 provisions. In this submission we are looking to the context for the long term achievement of the PC 1 goals, recognising that the present plan change is only a first step.

I am Anna Casey-Cox, Chair of ACRE, and a Community Organiser at Go Eco. With me is Alapan Roy Chowdhury. Alapan has been working with Go Eco as an intern and specifically researching alternative agriculture and its possibilities as a means of improving water quality.

ACRE is a Waikato Regional Council advisory committee whose purpose is to act as an environmental advocate by promoting the protection, preservation, conservation and enhancement of the natural values and character of the Waikato Region. It carries out this role by networking and promoting conservation and good environmental practices in the region, acting as a forum for ideas and concerns on environmental matters, making recommendations on any environmental matters that need extra investigation and research, advising the Regional Council on environmental policy and alerting it of environmental matters in need of attention and liaising with groups sharing similar aims.

Members of ACRE come from a variety of backgrounds including farming, horticulture, environmental conservation and restoration, farm forestry, and reserves management among many others. Collectively we are involved in some sixty community environment groups. Such groups help create a context in which environmental matters are seen as a collective responsibility, and can help set the context in which water quality measures undertaken at a sub-catchment level are seen as both acceptable and desirable.

Organic Farming

As an environment centre, Go Eco has developing relationships with the organic farming sector. Derek Broadmore, a certified organic farmer and a former chairman of the Biological Producers and Consumers Society (BioGro) and Organics Aotearoa New Zealand (OANZ), has drawn our attention to the work of the Rodale Institute in the USA. This institute has done extensive side-by-side trials, comparing organic with conventional crop farming over a period of more than 30 years. Several important conclusions have been reached.

- Yields from each system are more or less comparable when taken over a 10 year period. Conventional cropping will yield more in an average year, but organic will deliver greater yields in drought years.
- The water holding capacity of the soil is greater in organic systems.
- Organic systems sequester significant amounts of carbon in the soil.

As you will be aware, there is a proposal for 12 to 18 existing dairy farms in the upper Waipa River catchment to convert to low-input organic dairying. According to Bob Penter from the Waikato River Authority (cited by Stringleman, 2019) the scoping studies undertaken showed 40%-plus improvements in environmental impacts of nutrient leaching, sediment loss, E coli contamination and greenhouse gas emissions. These findings are exciting and from our perspective suggest that the development of organic systems in the Waikato has considerable potential.

Farmers, but perhaps particularly organic farmers, are concerned about the health of their soil. Soils are a complex ecosystem. Organisations like Integrity Soils are experts in developing soil health. They note that reducing nitrogen run-off can be profitably and sensibly done through enhancing microbiology and soil health. Through the addition of carbon based biological foods and stimulants, soil structure and nitrogen storage can be improved.

A significant proportion (over 70%) of our dairy farms have compacted soils. Compacted soils require more nitrogen and lose more nitrogen into the atmosphere and waterways. In healthy soils among the most common organisms are free-living bacteria and cyanobacteria which fix nitrogen into the soil. These free-living nitrogen fixers require air, so compacted soils will have less of these important organisms (Integrity Soils, 2016). The evidence and education provided by organisations like Integrity Soils are important for the development of our farming practices if they are to deliver the desired water quality outcomes.

For New Zealand, the business case for organic agriculture is strong. The bulk of our food is exported, much of it, currently, in commodity form. The international market for organically certified food and beverages has been growing at anywhere between 10 per cent and 15 per cent per annum for the last 15 years at least. It is, by far the most rapidly growing sector of the global food and beverage market.

Wetlands & Sub catchment planning

In our previous submissions, we have highlighted our concerns around the consenting processes required for integrated constructed wetlands. These processes, depending on the district Council involved, can be cost prohibitive. We assume that there is some work being undertaken to ensure that district councils can work effectively with regional council to streamline the consenting processes that relate to the construction of wetlands. A local wetland expert, Associate Professor David Campbell, (Earth Sciences Department, University of Waikato) suggests that swamp-type wetlands more commonly found in valley bottoms

and seepage-type wetlands in hill country are really important for nutrient transformations and as sinks for sediment runoff.

In terms of the construction of wetlands, we believe that a subcatchment approach is vital. We are aware that there is some work that has been done to enable the consenting processes for small scale schemes, but we are concerned that there is little work being done on larger scale schemes. ACRE and Go Eco would like to see consultative development of draft plans for larger areas and then work undertaken with the landowners to resource and implement them. We see this as a function of Regional Council but urban authorities that have – at least with existing technology - reached the economic limit for improvements to the quality of wastewater discharges should also bear an equitable share of the cost of sub-catchment water quality enhancement. This approach is consistent with the “exacerbator pays” principle and emphasises that water quality enhancement is a community-wide problem.

There has been some concern highlighted to us regarding the amount of methane that a restored or natural wetland might emit. In this respect, we take heed of the advice of David Campbell, who suggests that due to the relatively small land area involved, the methane emitted from wetlands is negligible compared to amount of methane that grazed farmland emits. David’s team at the University of Waikato has estimated the amount of CH₄ emitted by cows on Waikato dairy farms to be around 276 kg CH₄/ha.yr (stocking rate 3 cows/ha), which is equivalent to around 7.5 tonnes CO₂-eq/ha./yr. (For context, this per-hectare rate is equivalent to the CO₂ emitted by two people flying to London return).

Drained peatlands (the fate of 80% of Waikato's original peatland extent) on the other hand, are ongoing sources of CO₂ being emitted to the atmosphere and will be until all the peat has oxidised. David is currently running the New Zealand part of a research programme called PEATWISE, a collaboration with European researchers. This is focussed on mitigating Green House Gas (GHG) emissions from drained peatlands. The NZ focus is on quantifying GHG emission (primarily CO₂ and N₂O) for peat under dairy farming and looking for best practice for minimising emissions and peat shrinkage. The first publication is due at the end of this year.

Commercial Vegetable Production

We support Horticulture New Zealand and Commercial Vegetable Growers in their assertion of the importance of their products for feeding our local community and global community.

We think that an holistic planning approach is required that takes into account not only water quality, but also the amount of water and fossil fuels used to produce each kilogram of food. Each production sector needs to trace its fossil fuel use through to the final consumer and consider production, processing, freight, storage and packaging. We think that this will enable New Zealand to identify more accurately where we can compete in food products traded globally.

References:

Integrity Soils (2016) Retrieved

from:<https://drive.google.com/file/d/0B9PtBhb1fSjvQ0NidUwtTkJ4bDg/view>

Organic Dairying to clean river. Hugh Stringleman (2019). Retrieved from

<https://farmersweekly.co.nz/section/dairy/view/organic-dairying-to-clean-river>

Rodale Institute – The Farming Systems Trial – celebrating 30 years. Retrieved from

<https://rodaleinstitute.org/wp-content/uploads/fst-30-year-report.pdf>