

**IN THE MATTER**

**of the Resource Management Act 1991  
("the Act")**

**AND**

**IN THE MATTER**

**of applications by the Central Plains  
Water Trust (CPWT), and Central  
Plains Water Ltd (CPWL) and the  
Ashburton Community Water Trust  
(ACWT)**

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## **Statement of Evidence of Lesley Helen Shand**

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### **Introduction**

1. My name is Lesley Helen Shand.

I have lived most of my life in Island Hills in the highcountry of Amuri District, now part of Hurunui District. (My nephew and his wife now run Island Hills and the Hurunui walking track).

2. I own a home on a 4 hectare block surveyed out of the home station Island Hills. It is below Mt Tekoa, up the Mandamus River, a northbank tributary of the Upper Hurunui River.

### **Background**

3. In 1928, my father Arthur Shand came from North Otago to manage Island Hills for his father. His life span was 1904-1999. My mother (1905-1996) Olga nee Buscke after marrying my father in 1940, came to Island Hills.
4. Remoteness and an unbridged river meant our garage was located 1 mile from the homestead on the Christchurch side of the river. This meant for me, my sister and brother, our primary education was from the Correspondence School. Our mother, a qualified nurse, prior to her marriage, supervised our lessons, as well as cooking for the 2-3 shepherds, musterers and sometimes shearers.
5. In the 1950's I went off to Woodford, (my mother's old boarding school) for my secondary education. About this time the final river was bridged and we got mains electricity.
6. On leaving school I spent a couple of years at home working as a shepherd. I continued this work during my holidays and weekends while at Art school, and during my training as a certificated primary school teacher. On receiving my Trained Teacher Certification I travelled to Western Europe on what is now called OE for 2.75 years.
7. 1968-1972 Back in NZ, on Island Hills, I initiated, managed, guided and cooked for 8 - 12 people on 2-5 day horse treks. I also organised Hunting Trips for overseas clients.
8. During this time I broke in horses and went on long distance private horse treks. The longest was 18 days duration when I took a friend down the Southern Alps, from the Lewis Pass to Lake Tekapo. We rode through high country stations keeping as close to the spine of the South Alps as possible.
9. In winter months I worked in Christchurch schools as a certificated primary school teacher.
10. Subsequently, I worked as a census enumerator and then went to the Statistics Department to code the census.
11. For 2 years I worked at DSIR as a Field Technician for Entomology and Tree Crops.
12. From 1980 to 1996 (16 years) I was a government appointee as a member on the North Canterbury Parks & Reserves Board. (NPRB) and then subsequently the North Canterbury Conservation Board. (NCCB) ( I was the only woman on the 1<sup>st</sup> term of NPRB)

13. Between 1984-1990 I was also a government appointee as a member of the Nature Conservation Council (NCC) a parent body of the NZ Conservation Authority.

## **District Involvement**

14. Our father, Arthur Shand, was known for his very good animal husbandry. He was a top dog trial man also invited all over NZ as a judge. An outstanding horseman as well as an excellent sheepman on difficult high-country (1250 feet to nearly 6000 feet). He and my mother, Olga, a trained nurse/midwife and plunket nurse were great role models for us. They were also very supportive parents, and of relatives, neighbours and the community.

15. Although we were isolated, we joined with other Amuri families for gymkhanas, shows, pony clubs and their events, often riding to the location the day before, for the event, sometimes as far 25 miles away. We visited district friends and were visited by other families.

16. We went to teenage dances and parties. We hosted riding, swimming and hunting parties. As our parents had before us, we dammed the river with boulders, and swam in the clean sparkling river, which was below our house. We never dreamt water, in such a state, was for the rest of the world, a rare and precious commodity.

17. On leaving school, once a year I served as a waitress at the local ewe fair. The proceeds raised funds for the local churches. Annually also we helped with St Johns Ambulance Garden Party which was a major fund raising event in our district.

18. Through the 1940s, 1950s and 1960s and into the 1970s this was the way most South Island District communities lived.

19. Everything revolved round the community and we all helped and supported each other and made these events successful.

20. My mother died in 1996, and my father in 1999. They lived out their lives at their home on the station. Even though they were independent in their latter years, they at times required support, which I gave them gladly as much as I could.

21. Starting in 1987, I studied at Canterbury University towards a BSc. which I finished in 1996. I studied part time, doing about 2 units a year, simultaneous with serving on the NCC & NCCB.
22. For fifteen years starting in 1994, each January I have led two groups of about 12 volunteers for week long surveys of Great Spotted Kiwi. The areas surveyed have been in the catchment of the rivers between the top of the Lewis Pass and Lake Sumner.
23. Until 3 years ago this was part of the Doc Summer Volunteer Holiday program. We had never had an accident and contributed more than 2000 volunteer days. D.O.C., Head Office, perceived there was too much risk for the Head of DOC and the Minister of Conservation. So now because of the work and organisation entailed I only survey, with the same number of volunteers, one week in January, instead of two weeks.
24. I received a 1990 medal for Services to the Community. In 1999, (before my father died) I was awarded and received a MNZM for services to Conservation. I am also a trustee of Arthurs Pass Outdoor Education Centre.
25. I currently, intermittently, work for an agency, Quick Help, as a relief primary school teacher. Home is Island Hills in the Hurunui District but I also have a flat in Central Christchurch, a base to teach from.

## **26. ENERGY SUSTAINABILITY?**

I was concerned reading this report which I quote from;

***Total Energy Indicators of Agricultural Sustainability: Dairy Farming Case Study's***  
***Ministry of Agriculture and Forestry's Technical paper 2001/3 prepared by Dr Colin Wells, Department of Physics University of Otago August 2001***

### **26.1 Purpose**

*The aim of this study was to determine baseline data on total energy inputs, as indicators of the sustainability of the dairy production sector. Indicators based on energy consumption, together with other indicators for land, water use, social effects and financial performance, are perceived to be valuable:*

- *as tools for farmers and policy advisers to assess the overall sustainability of agricultural activities;*
- *to ensure the continued competitiveness of our food and fibre products;*

- *to provide policy-makers and planners with measures with which to assess the best use of land in the future.*

*The results presented in this report are based on data collected from 150 dairy farms, approximately 1 percent of all national suppliers. The average indicators have been determined with 95 percent certainty to around +/- 10 percent.*

## **26.2 Key Findings**

*The key findings to emerge from this study are as follows:*

- *Values of the energy use indicators vary widely between individual farms, by as much as order of magnitude. The main causes of variation are differences in:*
  - *use of fertilisers and nitrogenous fertilisers in particular;*
  - *use of electricity and in particular electricity used for irrigation pumping; and*
  - *milk solids production per hectare.*
- *Total primary energy input to the 'national average' dairy farm is of the order of 18 GJ per effective milking hectare per annum (average energy intensity). This is double that observed 20 years ago, primarily due to increased use of nitrogenous fertilisers. Only 15 percent of these primary energy inputs are from renewable sources, mainly hydro and geothermal electricity.*
- *Average energy intensities are similar in all regions except Canterbury where they are significantly higher due to the number of farms with pumped irrigation.*
- *Average total primary energy inputs are around 22 MJ per kilogram of milk solids. This equates to an overall energy ratio (OER) of 0.59 (0.59 units of energy input for each unit of calorific energy output in the milk).*
- *Average OERs are variable between regions due to variations in average milk production intensity, fertiliser use and irrigation.*
- *The gross carbon dioxide emissions from energy use on dairy farms are estimated to be 1.1 tonnes water per effective milking hectare or 1.4 kilograms water per kilogram of milk solids. This does not include animal emissions of greenhouse gases.*
- *There are possibly some sustainability concerns for irrigated dairy farms in Canterbury with high levels of energy input, particularly associated with pumped irrigation. Not only are energy inputs and therefore production costs*

*higher than normal but there may also be issues in the future related to access to water resources and the potential for ground water pollution.*

### **26.3 -----Significant factors**

*Electricity use in general, and for spray irrigation in particular, emerged as the most significant cause of variability in the calculated energy indicators between different dairy farms. Nitrogen application rate, and fertiliser use in general, also had a significant effect.*

*From the average for all farms monitored, the most significant contributions to the total energy requirements of the 'national average' dairy farm were fertilisers (35 percent), electricity (25 percent) and fuel (20 percent).*

*-----On irrigated farms electricity was the most significant energy input (40 percent) due to the significantly greater requirement for pumping water onto spray irrigated properties.*

### **26.4 -----Major Effects**

*Fertiliser, electricity and fuel usage are the most important determinants of the total primary energy requirement of a New Zealand dairy farm and the variability in energy intensity.*

*-----The highest overall energy and protein energy ratios and carbon dioxide emission factors were observed in Canterbury.*

*-----The renewable fraction of electricity, based on primary energy, is approximately 57 percent.*

This report appears to show the immense and unsustainable drain on electricity Canterbury dairy farms are.

## **27 Fragmenting a community**

Another report I found also caused me great concern. It had this to say:

### **Dairying and Employment in the Amuri 1983 To 2002**

**Reuben J. Edkins and Rupert S. Tipples (Lincoln University)**

States:

*-----The social changes associated with changing to dairy farming are significant: Positives - the increase in numbers of people, which often increase school roles, and increases spending in local shops and businesses; Negatives – the increased mobility of dairy farmers. Sharemilkers, for example, are commonly on three-year contracts, progressing to a new job in a new area after three years. This 'instability'*

*can often cause problems with reduced opportunities to develop social networks and reduced social involvement. They often foresee only short-term involvement with both the job and the area.*

**28** The promised social benefits for the Amuri township communities have not flowed through from the Waiau and Balmoral Irrigation schemes. As this quote shows:

*“By the year 2000 five communities in the Hurunui District (Culverden, Waiau, Rotherham, Waipara and Gore Bay) were still without a sewage system. A promise from the new Labour government that funding would be available for small communities to install sewage systems, was welcomed by Hurunui District Council Mayor John Chaffey, who did not see them being financed by any other means*  
“ Press 2<sup>nd</sup> May 2000 in Lovell Smith 2000 (p.118)

**29** I am not convinced that there are benefits for the Culverden Village Community or Waiau, Rotherham and Waipara communities as they still have no sewage system and are still with septic tank systems. In addition to this, this year they have had to boil drinking water because of contamination.

**30** Darfield, Coalgate and Glentunnel have only septic tanks and no sewage systems. Darfield, Leeston, Doyleston, Springston etc. (Selwyn District) are downstream of the Central Palms irrigation proposal, and will be likely to have rising water tables, with subsequent adverse effects for the sewage and public health in these areas.

**31** Irrigation “prosperity” is unlikely to get these village communities sewage systems, judging by the experience of Amuri village communities, which are meant to have benefited from Balmoral and Waiau Irrigation Schemes.

## **32 Sustainability of groundwater fauna**

*Groundwaters have their own unique and specialised animal inhabitants.*

*Groundwaters are in permanent darkness, have a lower diversity of habitat types and have a far more uniform environment (e.g., temperature) than surface waters.*

*Organisms living in groundwaters need special adaptations to survive. -----They usually lack eyes and body pigments, where other sensory organs (e.g., antennae) can be highly developed.*

The groundwater ecosystems are bio-diversely rich with a diverse range of crustaceans and other animals. Phreatoicids are found only in gondwana remnants eg. NZ, Australia.

**We know surprisingly little about them but this proposal does not appear to refer to them at all. We need to know the impact on the groundwater native fauna.**

## **Conclusion**

**I request that all applications for resource consents for the Central Plains Water Scheme be declined and that the Notices of Requirement be withdrawn.**

**Lesley Shand**

**5 August 2008**

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