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No plan survives the first contact of war.

(Clausewitz)

On arriving in 1972, we had planned on staying in New Zealand for only three or four years to see what the country was like, given we had met John Valentine, Andrew McEwen, Peter Berg and Hamish Levack when studying forestry at Aberdeen University. Viewed from abroad, New Zealanders appeared to be very well off. While we natives spent our forestry field trips two or three to a room at a parsimonious Scottish landlady's boarding house, the Kiwi students were on New Zealand Forest Service (NZFS) expenses in three star hotels. And they paid cash for new cars.

I had been offered a position at the Forest Research Institute (FRI) in Rotorua. Since then, it's been interesting times (a Chinese curse).

FRI was almost unique worldwide in being the applied research division of a substantial, active forest service, covering everything from genetics through to forest products research. While it could be argued that this spread scientists very thinly, the interaction across disciplines gave (and still gives) the Institute a great advantage. There was considerable latitude in conducting research, with scientists expected to carry out research that was useful to operations, not spend a large proportion of their time writing funding bids. Personally, in my early days I worked closely with NZFS staff at Kaingaroa and Rotorua Conservancy, with good relations with Colin McKenzie and his team at NZFP, Kinleith.

That doesn't mean to say there was no control or questioning. Imagine having to verbally explain the potential advantages to forest management planning of Dantzig-Wolfe Decomposition in Linear Programming to a committee comprising the Director of Management (Kirkland), a crusty old Conservator whose name I forget, the Director of Research (Bassett) and the Director of Production Forestry Research (Bunn, extraordinarily well read).

The mid-1980s brought both the dissolution of the NZFS and the necessity at FRI to carry out commercially funded research. John Tustin, my new director of Forest Technology Division, took to the commercial side with gusto. The consequences of the sale of state forest assets brought major opportunities for FRI. I had become research field leader of Forest Mensuration and Management Systems, theoretically in charge of some 15 or so very independent minded staff. We carried out

commercial projects from Aupouri to Tuatapere and worked in Australia, Fiji, Africa, Indonesia, Turkey and the US.

We also continued with original research, as well as attending scientific conferences throughout the world. Forest Technology started the forestry research cooperatives. These have morphed into the more formally managed Forest Growers Research. By the early 1990s, my section, in combination with Leith Knowles, Glen Murphy and Bruce Manley's sections, were the predominant suppliers of forest management software in New Zealand and Australia. This software was accurately described by a Landcare colleague as 'packaged science'. I respectfully submit that this was a far better use of taxpayer funded staff than publishing in so-called 'high-impact' international science journals to be quoted by researchers from Kazakhstan (or Europe or North America).

Since the breakup of the NZFS, change has been continual, but *plus ça change, plus c'est la même chose*. There has been a tendency to throw the baby out with the bath water. The NZFS method of taking someone from school, supporting their study at university or the Forestry Training Centre, combined with practical experience to emerge debt-free has long since disappeared. I'm sure that Julie Collins, Deputy Director-General Te Uru Rākau, found the NZFS practical work in her student days not only character building, but highly beneficial. The National Research Advisory Council (NRAC) scholarships for postgraduate study abroad did become overly generous, but have not been replaced to any great degree. Bruce Manley, Head, School of Forestry, University of Canterbury obtained his PhD at the University of Washington in the Pacific North-West. Studying or working abroad does broaden the mind compared to a career solely within New Zealand or Australia.

At the 2019 ANZIF conference, Antonia Reid, Te Uru Rākau, presented a forest strategy for New Zealand.

The thoughtful presentation offered encouragement to those of us who believed that completely disestablishing the NZFS and selling off most of the state plantations was a step too far (throwing out the baby, the soap, the facecloth and the bath). I have pointed out several times that Margaret Thatcher and, more recently, Caroline Spelman were unable to privatise the state-owned woodlands

in Britain, despite trying hard. The lack of widespread protest in New Zealand at the time does indicate that this was a classic case of losing a social licence to operate.

A strategic plan needs to answer the question ‘why?’

Perhaps the most relevant reason for Te Uru Rākau is the need to ensure that today’s New Zealand production forest sector does not lose its social licence. This will take far more than hiring a public relations company. A government agency is best able to coordinate and encourage the sector’s response, and perhaps remonstrate where aspects of practice do not accord with the general public’s view of what is desirable. Logging debris flows following major climatic events are currently the main threat to that licence. The obvious solution under current silviculture is to fell and extract the whole tree to roadside without breaking the stem and its branches, and process it, transporting all the residues to market. There would be little if any debris left behind – this is a relatively young, managed crop, not native old growth or the unmanaged ‘old crop’ on the frost flats. There is only a small effort for cross-disciplinary, integrated research to devise the harvesting systems, forest waste processing facilities and useful markets that can do this. Te Uru Rākau could exert considerable influence.

Logging debris is not the only problem threatening social licence. Safety must be improved by fully mechanising logging on steep slopes. The industry needs to take into account city dwellers’ dislike of highly visible, dramatic change to the countryside, perhaps employing and paying attention to a landscape architect addressing visual pollution, and not relying on statements that ‘green-up will happen within four or five years.’

The concern that the landscape will dramatically change with large blocks of radiata pine planted on productive farmland may be over-blown, but is a genuine concern, even if it is unlikely that another Kaingaroa Forest will be created. Government policy is not causing the sale of farms to forestry – the sales are being carried out by farmers themselves because of a better return on investment. Collaborating with the farming sector is necessary to alleviate this concern and protect forestry’s social licence, something that Te Uru Rākau is uniquely positioned to do.

Animal farming in New Zealand may be threatened with something far worse than radiata pine. ‘Clean meat’ and ‘flora-based’ milk are already here. Perfect Day launched its first cartons of non-animal milk product in July this year, with ice-cream biochemically the same as and with a taste indistinguishable to that made using cow’s milk. All it will need for factories in downtown Shanghai or New York is for the price to fall to below that of products from animals.

Blocks of planted forests scattered throughout the farm on the less productive sites will act as an insurance and backstop, as they did in the 1980s for those

farms that had them when agricultural subsidies were removed. What proportion of a farm will be forested will evolve with experience through time. A key part of that experience will be what happens to the very large area of small-scale private forests planted in the 1990s and due for harvest very soon. If the landowner receives a significant amount of cash after all harvesting and sales expenses, Micawber-like happiness will follow. Misery will ensue if logging is badly carried out and expensive, or if poor advice has been taken. It is in ensuring that good advice is available, freely or cheaply, that Te Uru Rākau has a key role to play.

This role could take one of two paths. They could employ a network of practical, experienced and locally-based extension officers. Their advice could be as little as determining when an owner would benefit from being represented by a reputable forestry consultant, or as much as acting on behalf of the owner in operationally managing a logging contractor and selling the logs. Amongst other things, it could establish FSC/PEFC certification for most (if not all) of the small-scale forests, as for example the Wisconsin Department of Natural Resources Managed Forest Law programme.

Alternatively, Te Uru Rākau could support the development of a professional farm forest management association, such as Södra in southern Sweden (owning three pulp mills), or MTK and the 62 local forest associations in Finland where the PEFC/FSC certified, small-scale pine/spruce forests are managed by ‘periodic cover silviculture’. Similar New Zealand farm forestry associations, perhaps including one or more primarily devoted to Maori, would employ their own extension officers. This would represent a significant professional upgrade of the New Zealand Farm Forestry Association (NZFFA), which currently is about ‘Promoting the wise use of trees for profit, amenity, sustainability and the environment’. This statement is very nice and cannot be argued against, but does the NZFFA offer the hard, specific advice when a farmer has an offer from a contractor that sounds almost too good to be true and the wife needs a new car (in Sweden known as the Volvo harvest scheduling method)? Experience in other countries shows that this development and upgrade is difficult to carry out by the owners by themselves and requires government support in the early days.

Perhaps the most difficult task that Te Uru Rākau is expected to fulfil is to reduce the proportion of logs that are exported unprocessed, with its stated goal of ‘a stronger domestic market for wood products.’ New Zealand is the largest exporter of unprocessed logs in the world. This is not a proud achievement. In the year ended March 1973, my first year here, log production was 7 million m³, exporting 2 million (29%). By March 2018, production was 33 million m³, with 20 million exported (61%). Increasing domestic processing, while still retaining the forest owner’s rights to maximum net revenue, will not be easy.

The times remain interesting.

