

# The Mainstreaming of Biodiversity and Conservation Stewardship at The Yalumba Wine Company, Australia

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**Abstract:** In 1995 *The Yalumba Wine Company* commenced a structured approach to sustainability and environmental management, which in 2003 culminated in a doctoral thesis authored by this writer (Camilleri 2003). Yalumba continued its efforts to mainstream biodiversity as part of its ‘*Commitment to Sustainable Winemaking*’ programme and sought to identify whether the programme was delivering on its commitment by undertaking an ex-post strategic assessment (Camilleri 2008a). The strategic follow-up indicated Yalumba needed to do better in communicating with the principal members of its value chain in order to effectively engage them in its sustainability programme.

**Key words:** biodiversity, ecosystem services, integrated production, Yalumba

## Introduction

Yalumba’s involvement with Australia’s wine industry dates back to 1849 when Samuel Smith, a brewer from Dorset (England), settled his family in the Barossa Valley of South Australia and planted 30 acres of vineyard (Linn 1999). Six generations and more than 150 years later, Yalumba, Australia’s oldest family owned winery, has developed into a wine success story, basing its sustainability on the careful management of the essential elements that make wine – earth, air, water and energy (Camilleri 2003). Significantly, Yalumba proactively aligns wine quality with the provision of services by biodiversity (Swift *et al* 2004) and has adopted an ecosystem approach to the lifecycle of grapegrowing, winemaking, packaging and distribution by applying principles of agroecology and industrial ecology (Camilleri 2008a).

## The ecosystem approach to wine business management

The ecosystem approach is arguably an emerging concept for implementing environmental management systems by business. It is a strategy that integrates the management of biotic and abiotic resources whilst promoting conservation and sustainable use in an equitable way. Converting the concept into practice is a major challenge and its successful implementation can only be achieved if advantages over alternative approaches are demonstrable. Historically, land managers tended to focus on single issues. Today, Yalumba acknowledges that such a limited focus rarely works, because socio-ecological systems (such as vineyards and wineries) are complex integrated systems. The wine firm argues that its sustainability, as well as that of the viticultural and wine industry, depends on the perception of winery estates and grower vineyards as micro-cultural landscapes, or natural ecosystems dominated by human artefacts, where wine is understood to be a function of vine genotype and phenotype, vineyard physiognomy, edaphic factors, meteorological factors, geographic factors, and anthropological factors (Camilleri 2000). Arguably, these are the very components of *terroir*. Moreover, the production landscape is understood to be

multifunctional, typically producing simultaneously a range of commodity and non-commodity use values. Sustainability requires that both holistic and analytic perspectives be employed to recognise and protect the entire range of values. This leads to the idea of multifunctional landscapes and multifunctional organisations. In this context, biodiversity is understood to maintain and increase predictability, reliability (or stability), process efficiency, productivity, and sustainability. In other words, biodiversity is understood to be an insurance against future change. The so-called *insurance hypothesis* or *portfolio effect* (Yachi and Loreau 1999; Loreau *et al* 2001), which depends on the relationship between biodiversity and ecosystem functioning, is increasingly of concern to Yalumba because (a) the high rates of species extinction can be detrimental to the ecosystem services that are essential for Yalumba's sustainable competitive advantage; (b) enhancing biodiversity in social ecological systems may improve their performance and productivity and decrease impact on land, water, air and energy use; (c) experimental manipulation of biodiversity is intrinsically valuable as a means of improving the appreciation of the structure and functioning of socio-ecological communities.

The ecosystem approach requires adaptive management of Yalumba to deal with the complex and dynamic nature of socio-ecological systems and the incomplete knowledge or understanding of their functioning. Moreover, as ecosystem processes are often non-linear time-lags tend to be common. The result is discontinuities, which in turn lead to uncertainty. Consequently, as a community of individuals, Yalumba must be adaptive and develop the competence of '*learning-by-doing*' (action research feedback) as decisions may need to be taken even when significant *cause-and-effect* relationships are not fully established scientifically. As cultural gestalt systems, the individual elements that constitute the vineyard, the winery estate or the entire value chain system derive their nature and purpose from the whole and cannot be understood apart from it. In order to manage a social ecological system sustainably, it must be understood holistically. The forward and backward linkages between organisational culture and the '*other*' units of the socio-ecosystem must be identified and recognised. To do this, the environmental beliefs, values and attitudes of an organisation, such as Yalumba, need to be defined to develop managerial decisions that have minimal impact on biodiversity and ecosystem services.

### **Integrating biodiversity in sustainable wine business practice**

In 1995, *The Yalumba Wine Company* initiated action research to inquire whether the wine firm had reached a stage of corporate maturity that allowed it to develop a land stewardship ethic based on environmental quality as well as social equity and economic prosperity. It also sought to demonstrate the link between organisational culture, employee behaviour, the ecosystem within vineyards and wineries, the landscape and the consumer. To achieve this, a multi-paradigm approach was adopted (Camilleri 2003). Socio-anthropological techniques (mainly surveys and semi-structured interviews) were used to determine the beliefs and values that underpinned the environmental attitudes and aspirations of Yalumba's employees, whilst a mensurative experiment was set up at Yalumba's vineyard estates in the South East of South Australia (Camilleri 2001; Camilleri 2003) to explore biodiversity levels in remnant vegetation, in revegetation areas and in vineyards under various management practices. Biodiversity indices were calculated using epigeic invertebrates as surrogate indicators of biodiversity.

After 4 years of intensive strategic dialogue and extensive observations, the Board of The Yalumba Wine Company approved the implementation of its '*Commitment to Sustainable Winemaking*' programme (Camilleri 2010a). This integrated '*sustainability*' programme was

based on the mainstreaming of lifecycle thinking and of biodiversity. Operationally, the lifecycle approach was expected to achieve results through eco-efficiencies, resource substitution and elimination of root causes. The mainstreaming of biodiversity was to be achieved by implementing a land stewardship policy that identified each property as consisting of three linked management areas: an area of sustainable grape or wine production based on the integrated production system of the IOBC (Boller *et al* 2004; Malavolta and Boller 2007); an area of revegetation or rehabilitation; and an area set-aside for traditional conservation and protection of native flora and fauna.

## Results and discussion

In 2003 Camilleri commenced an *ex-post* strategic assessment or follow-up to gauge the effectiveness of Yalumba's environmental policy and its '*Commitment to Sustainable Winemaking*' programme (Camilleri 2008b). Partidario and Arts (2005) argue that, because of the complex nature of strategic decision-making and strategic assessment, *follow-up* cannot rely on monitoring that is only based on indicators that measure a direct, simple causal relationship between the adopted intervention and environmental changes. Therefore the strategic assessment was a multi-paradigm inquiry that made use of life cycle analysis, semi-structured interviews and the survey method to explore whether the causal link from capital inputs to outputs and subsequently to the achievement of social, economic and environmental outcomes did occur as initially envisaged, and if not why. Specifically, the *follow-up* action research sought to ensure that (1) consensus decisions were not made on the basis of intuition or habit; (2) evaluation involved the structured application of knowledge and methodology; (3) stakeholder dialogue was overt, fair in process and based on credible information; (4) a process-oriented approach was adopted when addressing uncertainties. In summary, the three core purposes of *follow-up* were control, information and communication.

Considering the evidence, but within the constraint of the paucity of knowledge about cause-effect relationships between a given activity or the content of a strategic plan and the observed environmental changes, this writer concluded that the Yalumba Wine Company was successfully travelling the sustainability journey by implementing the concepts of ecological modernisation; namely by (1) moving beyond '*apocalyptic*' worldviews to see environmental problems as challenges for organisational, social, technical and economic reform, rather than as irreversible consequences of industrialisation; and (2) emphasising the transformation (though not beyond recognition) of its core organisational cultural infrastructure, including, production and consumption, viti-vini ecology, organisational politics and governance. The strategic follow-up also highlighted that Yalumba's '*Commitment to Sustainable Winemaking*' programme could be more effectual, sustainable and significant if communications were employed effectively to convey to Yalumba's stakeholders the corporate philosophy that expressed its corporate culture, thereby developing an effective psychological contract and a realistic stakeholder brand, image and reputation (Camilleri 2008b). In other words, Yalumba needed to become more effective in communicating with salient members of its value chain so that they could be effectively engaged in its '*Commitment to Sustainable Winemaking*' programme (Camilleri 2009). To address this shortcoming Yalumba initiated in 2008 the next iteration of its action research: Yalumba is currently undertaking a collaborative appreciative inquiry as well as studies in positive organisation scholarship and social semiotics to develop a communication strategy that will effectively engage its stakeholders in its sustainability programme, from the vineyard to the consumer's table (Camilleri 2010b).

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