

# What Is the Role of The Arts in the Face of This?

## An Exploration in the Context of Systems Thinking and the Transition to Sustainability

Iris Bergmann<sup>1</sup>

### Introduction

Earth Overshoot Day, also known as Ecological Debt Day, tends to move forward in the calendar. This is the day that the world's population lives on credit, and humanity has used up the natural resources of forests, fisheries, pastures and cropland, and the Earth's capacity to absorb waste.<sup>2</sup> The Global Footprint Network has calculated that in 2008, Earth Overshoot Day was on 23 September.<sup>3</sup> Adding to this we struggle to grasp how global warming and climate change will impact the human condition and all life on earth. *What is the role of the arts in the face of this?* – A question asked repeatedly by the audience and presenters of the Symposium "Cultures of Sustainability" at RMIT University in Melbourne in September 2008.

Around the same time, Regional Arts Victoria (RAV) conducted a two year arts program titled "Fresh & Salty" across five locations in regional Victoria.<sup>4</sup> A community consultation process designed to identify a unifying theme across the regions revealed that communities were most concerned about the ongoing ten-year drought. At the same time there was the desire to express concerns in a positive and uplifting way. Thus, the theme of "water" emerged. RAV states that "Fresh & Salty" was developed to provide positive opportunities for communities to explore and express their concerns and enhance understanding of how water has influenced and supported their ways of life, to create five major visual artworks in regional Victoria as a catalyst to examine local water issues while providing the artists with professional development opportunities, and to engage communities in local issues and development.<sup>5</sup> The focus of the program was on creating artworks of significance and on community engagement and development, not on sustainability as such.<sup>6</sup> Yet, the various ways in which the theme of water was conceptualised reveals that issues of sustainability were of primary concern for the participating artists and communities.

To address the role of the arts in the context of sustainability, global warming and climate change, I build on the following ideas: Change for sustainability requires a paradigmatic social-cultural shift toward an ecological worldview based on Whole Systems Thinking. This involves a path to change which is characterised as a learning process whereby the arts are a natural facilitator for many aspects of this process. A movement within the arts has emerged accepting the challenge of issues of sustainability as their "new frontier" and not surprisingly, many of its participants base their theories and practices in Systems Thinking.<sup>7</sup> Outlining some of the processes and outcomes of "Fresh & Salty" within this frame of reference assists in articulating the potential of the arts as another force to advance our transition to sustainability. Various facets of the role of the arts thus emerge: the arts as an agent to reshape relations between people and environments; to re-vision kinds of relationships, kinds of thinking and kinds of futures; to instigate social learning; to practice sustainable actions; to foster cultural diversity and resilience; to promote transdisciplinarity; to unveil hidden paradigms and to practice what we have not yet experienced – thinking, knowing and acting under the new ecological paradigm.

## **Change for sustainability – where to start?**

Donella Meadows, key systems thinker, modeller and co-author of the report to the Club of Rome “The Limits to Growth”, developed a hierarchy of twelve leverage points to intervene in a system. One such leverage point is at the level of constants, parameters and numbers such as subsidies, taxes, standards. Meadows suggests that maybe 90 or 99% of our attention is directed at this level; yet, parameters are the least effective leverage points. Meadows argues that the most powerful leverage points are the mindset or paradigm out of which the system – its goals, structure, rules, delays and parameters – arises, and, above all, the power to transcend paradigms. The way our human designed systems function is a product of our worldview, of our deepest held beliefs of how things should be and of what we value. Paradigms are the sources of systems.<sup>8</sup>

## **What really is a paradigm?**

Sterling identifies three components of a paradigm: ethos, eidos and praxis.<sup>9</sup> He refers to ethos as the affective, belief and imaginal dimension. It includes values and norms. It is about perception, our epistemology. Eidos is the dimension of ideas and concepts. It refers to the intellectual paradigm level, the guiding idea; it is about our ontology. Both ethos and eidos “give rise to and influence the praxis”, the “theory in action” and behaviour, both what is done (and not done) and how it is done”, our methodology.

Every individual and society holds a particular paradigm as their frame of orientation, as their story about the way the world works. Paradigms become part of our nature to the degree that

It is so hard to talk about worldviews. It’s like trying to see the lenses of one’s own eyes, trying to bite one’s own teeth, trying to explain one’s language without using that language.<sup>10</sup>

This embodiment, automaticity and conventionalisation of paradigms help us to function and communicate effectively on a day-to-day basis. However, this becomes problematic when the paradigm insufficiently covers the context it is applied to.

## **So what kind of paradigm do we need?**

Most critique of the current dominant paradigm is aimed at the belief in unlimited growth. For example, Beddoe et al. state that

Our current socio-ecological regime and its set of interconnected worldviews, institutions, and technologies all support the goal of unlimited growth of material production and consumption as a proxy for quality of life.<sup>11</sup>

This belief is based in the dominant social-cultural paradigm that is described as the Newtonian Cartesian view of the world. It is a reductionist and mechanistic view that interprets the world as a machine, characterised by a fragmentary epistemology.<sup>12</sup> It is based on a view of separation from the other, and leads us to believe in infiniteness and control. This belief is blatantly inadequate in the light of the system’s complexities and the Earth’s physical limits.

Sterling provides an excellent and comprehensive synthesis of the foundation and origins of the required ecological worldview. For the purpose of this essay it suffices to refer to four of these dimensions: The current dominant worldview is founded on the “epistemological error” (as coined by Bateson), that is a strong sense of and intellectual belief in separateness from the other. Second, since the issues surrounding us are systemic in nature, we need to think and learn systemically. Systems Thinking is relational rather than non-relational, systemic and connective rather than linear and fragmentary; concerned more with process rather than cause-effect, with pattern rather than detail, with wholes rather than parts. However, Systems Thinking as a discipline is not necessarily ecological. Therefore, and this is the third dimension referred to here, Sterling introduces the concept of Whole Systems Thinking which includes an ethical and epistemic orientation and is based on ecological thought as a body of knowledge. Fourth, Complexity Theory is highlighted by Sterling as another foundational base since it provides us with an understanding of conditions of systemicity and uncertainty and how to work within them. In particular, Complexity Science suggests that the processes that underlie the health of organisms, ecosystems, organisations and communities are

organised by non-linear phenomena, that they are comprehensible only with attention to qualities, that cause and effect are not separable, that the functioning of the whole cannot be explained by breaking its elements down into smaller and smaller parts.

## On Sustainability

The current dominant economic and political systems rely on the concept of sustainable development – rather than sustainability – with development referring to economic development and growth only. They are guided by those, as Brundtland says, questionable beliefs “that people dominate the earth; that they are masters of their destiny; that the world is vast and unlimited; and that history is a process of advancement with every problem solvable.”<sup>13</sup> In contrast, the discourse on sustainability has moved further and individuals, groups and movements are advancing counter arguments and actioning practices that are seriously challenging the proponents of these views.<sup>14</sup> Here, sustainability is linked to social and environmental justice, and environmental and community health. Thus, justice issues include conservation of natural resources, as well as community self-determination and cultural integrity built on human rights and ecological democracy principles. Consequently, preservation and transmission of Indigenous knowledge systems are an essential aspect of a community’s autonomy and sustainability.<sup>15</sup> Through the lens of the ecological worldview, system-level goals include survival, resilience, differentiation, evolution.<sup>16</sup> They are also about conservation of potential and increasing self-organisation, and adaptive capacity.<sup>17</sup>

## How do we get there?

The transition to sustainability and the adoption of the new paradigm requires us to engage in higher order change and learning. Following Bateson’s learning levels, Sterling explains that while Level 1 learning and change is stabilising and not threatening the existing structural and belief systems, Level 2 begins to question assumptions, requires us to take a meta-perspective and to step out of the familiar frame of reference. Here, we seek deeper ecological solutions which involve structural and valuative change. Third-order learning and change leads to a complete change of worldview and epistemology and a shift of consciousness.<sup>18</sup> Strategies to support this learning and change process are encapsulated in the concept of social learning: Social learning is a way of organising learning and communities of learners. It is learning within contexts such as the social, cultural, place or circumstance. Social learning is an intentional process and facilitates the development of values, knowledge and action competence of individuals, groups, organisations or networks of actors. This is to build their capacity to participate in the resolution of emerging issues. While facilitated under the guidance of the ecological worldview, social learning is in part self-directed and internally determined by individuals and groups of learners.<sup>19</sup>

## “Fresh & Salty”

The concept of the ecological worldview with its components of ethos, eidos and praxis, and the nature of change and learning required, are used here as a framework to explore how the arts can facilitate the transition to sustainability. In applying this framework to the program “Fresh & Salty”,<sup>20</sup> five program features emerge. Each of these program features can be examined in terms of all three paradigm components and for each “Fresh & Salty” project individually. However, I elaborate here only on those paradigm components and with reference to those projects that provide the most illustrative cases. The features and paradigm components are: programmatic and institutional aspects (eidos and praxis), the emerging conceptualisations of the theme “water” (ethos), ways of learning and the significance of diverse partnerships and collaborations (praxis), explorations of place and Indigenous perspectives (eidos), and the aesthetic dimension as another way of knowing (*eidos and ethos*). In the following, I discuss how the relevant paradigm components manifest in these five features of individual projects of “Fresh & Salty”. What follows is not an evaluation of the program. It is rather an exploration of the potential of this program in particular, and the arts in general, leading to an attempt to articulate the role of the arts in accelerating change for sustainability.

*Programmatic and institutional aspects (eidos and praxis).* As alluded to in the introduction, “Fresh & Salty” was implemented as a state-wide regional arts program between 2007 and 2008 in five locations in regional Victoria, including Ballarat, Golden Plains Shire, South West Victoria, Wellington Shire and the Wimmera. RAV reports that

support structures consisted of local level control with a Regional Arts Development Officer (RADO) located in each of the regions, and a centralised management structure for direction overseen by a state-wide coordinator. Based on their networks and local knowledge, the RADOs were well positioned to identify potential local artists and organisations for collaboration. For the realisation of the individual projects, partnerships were formed with various organisations, local governments, businesses and other agencies. Memorandums of understanding between the program partners within each region set out agreed and shared outcomes, including future responsibility and maintenance of the artworks. The program was overseen by an artistic advisor who was responsible for quality and cohesion of the artworks across the five projects. Mentors were available to support the artists.<sup>21</sup> It appears that these structures allowed for flexibility and adaptive strategies to be put in place to be able to respond to local needs. The program documentation emphasises that each project grew out of its specific local context in a locally meaningful way while pursuing an overall shared vision. Collaborations and partnerships were diverse and crossed a number of boundaries: cultural (Indigenous and non-Indigenous), generational (including youth involved in workshops and hands-on activities to create the arts projects), administrative boundaries (beyond single shires and organisations). It also crossed boundaries of interests, and discipline-specific boundaries, which is evident where a transdisciplinary approach between the arts and a predominantly science-orientated organisation, the Wimmera Catchment Management Authority, shaped the project (more below). In sum, according to RAV, "Fresh & Salty" has produced five major artworks, that is four landscape artworks and one animation; employed ten regional artists; attracted significant contributions and engagement of twenty partner organisations such as businesses, local councils and other agencies; involved about 90 community members in a hands-on capacity such as stone-wall building, digging up the Wendouree Lake bed, and planting Indigenous gardens; engaged a large number of community members in workshops; and involved audiences of thousands of regional people through a number of events such as launches and a television advertising campaign; and it generated regional and metropolitan media coverage.

*Emerging conceptualisations of the theme "water" (ethos).* In the Wellington Shire, the artist Gillian Swanson created a three-metre-high sculptural abstraction of an endemic seedpod using fibreglass on a foam core with a steel armature. It is an abstraction of two utricles, or fruit sacs, that hold the seed of the Swamp Sedge. This plant is listed as rare in Victoria. It is known to grow in the headwaters of the Macalister River in Gippsland and on the Major Mitchell Plateau in the west of the state and Tasmania. The sculpture was titled *Sero*, which is Latin for "I sow". The artist states also that the seed is a metaphor for new life engendered as a symbol of growth, birth and regeneration. She sees the two symbols, plants and water, as linked and inseparable, whereby water references the non-manifest and the seed stands for latency. With the seed being the manifestation of life (artist statement), the sculpture is also a symbol of the intrinsic power of water to create life.<sup>22</sup> It is situated at the edge of the Heyfield Wetland and as stated in RAV's documentation, it has particular relevance for this area following devastating fires and floods.<sup>23</sup>

In Ballarat, environmental artist Michael Shiell (lead artist) and Indigenous visual artist Billy Blackall (collaborator) created an ephemeral earth drawing on the dry bed of Lake Wendouree, using turned earth and clay. It includes three platypus figures swimming through the work, each one being 150 m × 75 m, with the total area of the artwork taking up 900 m × 300 m. Having dried out in 2006, the lake is also an icon of drought and climate change in the region. It was anticipated that the work would be submerged due to the piping of water from the wastewater treatment plant. The lead artist states that the work references the fragility of humanity and our environment, and the need for a correlating light footprint.<sup>24</sup>

In South West Victoria, artists Vicki Couzens and Carmel Wallace, together with artisan Alistair Tune (stonewaller) created a dry stonewall sculpture in the shape of a traditional eel trap using only materials found there. It references traditional Indigenous rock dwellings and eel traps used by the Gunditjmarra people, and the stonewalls built by early European settlers in the area to grow crops and manage livestock. The artists state that their work draws attention to the ways European settlers and Indigenous people have lived on the land and utilised water and thus pays respect to both knowledge systems and practices.<sup>25</sup>

In the Golden Plains Shire, artists Julie Collins and Derek John created a living sculpture titled "Ship of Fools" including several steel vessels with potted plants placed

within wetlands adjacent to a primary school. They explain that their work reflects the contrast between a land in drought and some in regrowth and regeneration, between caring and neglect, the consequences of inadequate action, and the ambiguity of potted and caged nature. An important part of the concept is that the responsibility for the maintenance and care of the sculpture is undertaken by Year Six students of the adjacent primary school who hand this responsibility on to the following Year Six.<sup>26</sup>

In the Wimmera, animator Dave Jones and puppet makers Mary French and Hannah French developed a seven-minute animation on the impact of salinity on the Wimmera waterways and its ecological system. The animation depicts locally-specific plants, animals and river creatures as the main actors, narrated by local voices.<sup>27</sup>

In sum, the story each project tells about water is a reflection on an array of ecological values, such as nurturing and caring, resilience, diversity, regeneration, germination and life creation, acknowledgement of diverse knowledge systems – Indigenous and European, and growth in the ecological sense, by referring to re-growth, re-generation, re-birth. It refers to notions of fragility, and the consequences of neglect and lack of water. The artists' explorations of water thus convey a sense of social ecological ethics, of learning about being rather than about instrumental values, and about responsibility.

*Ways of learning and the significance of diverse partnerships and collaborations (praxis).* The exploration of the theme of water was a learning experience for the artists, the project partners and other participating individuals and groups. In Ballarat, the BADAC youth group was involved in four workshops run by the artists, RADO and an Indigenous historian, and they experienced aspects of the design development. Thirteen youths, three leaders and two volunteers also partook in the hands-on work, turning soil, raking fairy grass and barrowing clay.

In the South West, the Winda Mara Aboriginal Corporation and local Elders were involved in the development of the installation. A dry stone walling workshop was held for the wider community on site. Other theme-related creative workshops were held for a number of groups in the Golden Plains and the Wellington Shire.

A wider audience benefited from the projects through opening events and community workshops, and through the partners extending their involvement beyond the actual program commitments: In the Wimmera, the artwork (an animation) has formed a major part of Wimmera Water Catchment Management Authority's (WCMA) campaign for the next three years, replacing a footballer as spokesperson. The artists were also commissioned to create three 30-second television ads which have been aired on local television and feature the voices of local people visiting the Wimmera River. The WCMA leveraged this project to create a resource kit for schools which uses the animation as the catalyst for discussion and learning. With this seven-minute animation, the artists have brought together their own way of knowing and communicating through art, and the partner organisation's way of thinking and working from a predominantly science-based perspective. In Ballarat, 40,000 postcards of the landscape arts project were sent to Ballarat residents via the City of Ballarat's "My Ballarat" publication, and the collaborating Indigenous artist was asked to advise on the design of a new playground for children. In the South West, the stone sculpture is incorporated into a visitor tours program.<sup>28</sup>

Overall, based on the program documentation, it can be suggested that the learning processes in all five projects were, to a lesser or stronger degree and in varying ways, characterised by inclusion. The processes also provided opportunities for organisational learning. For example, in the Wimmera, there was a close working relationship between the partners, the Wimmera Catchment Management Authority (WCMA), the local RAV team and the artists. RAV reports that while the WCMA took on a large role in the coordination of the project at the local level, they valued and respected the creative objectives of the arts project, and the project had purpose, life and value to the organisation. Further, it appears that there was an experience of social and community learning as opposed to individualism and of social and community engagement as opposed to institutional isolation. Learning occurred for various actors and at various levels. There is evidence of participative and active learning rather than a passive instructional teaching process, of social learning, and transdisciplinarity. It is about affective, intuitive and practical learning rather than cognitive experience only. In sum, the project allowed for a systemic learning experience.<sup>29</sup>

*Explorations of place and Indigenous perspectives (eidos).* From the above descriptions it can be summarised that in exploring place, the emphasis was on generating knowledge and meaning in context, of an exploration of the existential orientation

within the locale and within the context of ecological thought as it emerged through the exploration of water, and with an awareness of sharing the place with the other – the living and non-living elements. It was learning in terms of applied and local knowledge rather than abstract knowledge.<sup>30</sup> In some cases, community members had been on the sites for the first time, so particularly for them, as well as for others, this learning experience was potentially about a shift from placelessness toward fostering and celebrating a sense of place.

Particular consideration deserves the inclusion of, and learning from and with Indigenous collaborators, partners and places of relevance in two of the projects. In Ballarat, the partnering organisation was the Ballarat and District Aboriginal Cooperative (BADAC). RAV emphasises that the project explored the history around Lake Wendouree as a gathering place and a site rich in cultural heritage for Indigenous and non-Indigenous people, and that the collaborating artist Billy Blackall is a Yorta Yorta descendant. In the South West, the project was developed with advice and cooperation of the Lake Condah Sustainable Development Project (LCSDP), which was supported by the umbrella organisation, the Winda Mara Aboriginal Corporation at Heywood, and local elders. The sculpture was created on an Indigenous protected area which since 2008 is part of the first Australian UNESCO Geopark called Kanawinka. The project site in the South West is a site of cultural significance for the local Gunditjmarra people as part of the Budj Bim National Heritage Landscape, and their recently successful native title claim. The Geopark is owned and managed by local people through Winda Mara Corporation who now conduct tours to the land. RAV reports that the collaboration was experienced as a handing-over of a significant piece of art and stimulated a sense of “giving back” to the cultural heritage of the land. The most important aspect of the partnership, as stated by RAV, was the cultural advice by and exposure to the Indigenous community.<sup>31</sup>

While these collaborations and links that were established with the two projects were significant, the value of including Indigenous perspectives goes beyond historical knowledge of place and working together. The importance lies in establishing connections with Indigenous ecological knowledge and thinking,<sup>32</sup> which is further elaborated below and demonstrates how this program feature then can also address the ethos component of paradigm.

*The aesthetic dimension as the other way of knowing (eidos and ethos).* The quality of the aesthetic experience opens other ways of knowing. For example, in the case of the animation on salinity, it would have been easy to remain at the instructional level transmitting facts about salinity. However, the artists moved beyond this, thus preparing the ground for deeper learning. They have opened up opportunities of awareness for us not only from the perspective of scientific facts, but from the perspective situated within personal experience and emotion. The animation includes beautiful moments of a visual experience that is captivating and engaging, and that is capable of touching our kinaesthetic mode, inducing a sense of identification, and a sense of immersion into the element of water. The quality of this aesthetic experience, as well as the narrative tool of giving life and personality to the water creatures, and narrating the story of their way of life and the danger of salinity to them from their perspectives, may convey a sense of compassion, another important ingredient of the ecological worldview and learning for sustainability. Thus, this learning experience moves into the realm of ethos.

### **The role of the arts in the face of this**

As presented in the introduction, RAV's program focus was on creating artworks of significance and on community and artist engagement and development, and not on sustainability as such. In exploring processes and outcomes of “Fresh & Salty”, however, it became apparent that an ecological perspective was favoured by the artists and the collaborating partners. The five program features presented above display characteristics of a systemic approach in one or two of the paradigm components (ethos, eidos and praxis) and these were sketched out above. In order to maximise the potential of the arts for the transition to sustainability, it is essential to intentionally design a program with attention to systemicity in all of its aspects. Intentionally also means with an awareness of the underlying value base of all participants in relation to the dominant worldview, with an understanding of the ecological worldview and its foundation in the context of change for sustainability, and with an understanding of the need for epistemic learning, the levels of learning and change, and social learning strategies.<sup>33</sup> To

illustrate this point, I describe in the following what this could mean for the inclusion of Indigenous perspectives.

Two of the projects – the platypus earth drawing at Lake Wendouree, Ballarat, and the stonewall construction of the South West project – made explicit reference to Indigenous cultures and relied on Indigenous involvement and advice. The levels of engagement with Indigenous perspectives reflect aspects of the ecological paradigm in *eidos* and *praxis*. *Eidos* refers to the “what” and *praxis* to the “how”<sup>34</sup> of the collaboration, and is illustrated above in outlining the program features “Ways of learning and the significance of diverse partnerships and collaborations (*praxis*)” and “Explorations of place and Indigenous perspectives (*eidos*)”. The aspect of *ethos*, however, which is linked to the question of “why”,<sup>35</sup> affords the participants a deeper level of engagement. This is of particular relevance for the advancement of an ecological paradigm since Aboriginal worldviews in effect are ecological worldviews.<sup>36</sup> Rose cites Aboriginal Philosopher Graham who identifies two basic precepts of Aboriginal worldviews: The land is law. And: You are not alone in the world. Graham states that “the relations between people and land becomes the template for society and social relations.”<sup>37</sup> Rose explains that “land” is inclusive of all living and non-living elements and phenomena of the natural world. The second precept is non-dualistic and references our kinship with the natural world. Rose points out that the “pragmatic challenge” that arises from these precepts is “to give priority to land in all our practice.”<sup>38</sup> In Aboriginal worldviews, the land and people are regarded as mutually life-giving and they take care of each other. All actions are bound into relationships of moral responsibility. While we talk about place when we refer to the locatedness of the artworks, Rose uses the term “eco-place” to describe the Aboriginal perspective of “locatedness that is not human-centred and that is attentive to the many living things who participate in the life of a given place.”<sup>39</sup> Eco-place, as well as people, are footprints of the ancestors and thus represent living signs of past action.<sup>40</sup>

These Aboriginal perspectives offer the potential for higher-order learning by showing us alternatives to our own worldviews, inciting us to re-examine and question them and entailing guidance for reorientation. They also place the onus on the participants to implement actions for social and environmental change based on an ethic of responsibility. However, Rose cautions that

in general, it is neither possible nor desirable to mimic their [Aboriginal people] ways of being in Australian environments – both because of the quantitative and qualitative social and environmental changes that are taking place, and because mimicry will fail to get at the deeper meanings. But it is possible, I believe, to seek together to reshape relations between people and environments.<sup>41</sup>

I would argue that arts programs such as “Fresh & Salty” are ideally placed to facilitate such reshaping of relations between humans and the natural world and between Indigenous and Western cultures. As experienced with “Fresh & Salty”, a community arts project can bring communities together and prepare the ground for discussion, exploration, and shaping of visions and relations. The project in the South West demonstrates how as part of this process the ongoing endeavour of shaping visions and relations can be visualised in the artwork by integrating references to both traditional Indigenous and Western practices. By extension, the arts can become a collective revisioning tool, visualising kinds of thinking and kinds of futures. The animation created for the Wimmera is most amenable to visualise and communicate such visions to larger audiences.

The “Fresh & Salty” projects have also shown in various ways how an arts project can create a framework and an environment for social learning. At a practical level, it may be possible to leverage the explorations and the social learning that takes place for the stakeholders involved, in such a way that it turns into an inquiry into controversial issues to assist stakeholders find resolve for change toward sustainability. Furthermore, at the practical level, arts projects can give opportunities to practice actions relevant for the transitioning process. Practicing actions have been found to be an important component of adopting and sustaining behaviour change for sustainability.<sup>42</sup> Based on her work on the ethical challenges facing Australia in terms of reconciliation between Indigenous and non-Indigenous people and between people and nature, Rose concludes that for ecological systems to thrive, it is “not a matter of people or no people, but of what kind of actions”.<sup>43</sup> The project in the Golden Plains Shire “Ship of Fools” had initiated a process of learning about the consequences of neglect and rewards for caring

for nature. The Memorandum of understanding setting out the handing over of the duty of maintenance and care for the living artworks to Year Six of the local primary school each year has embedded the practicing of responsible action for the long-term. The Golden Plains project has shown also how an arts project can take on a strong aspect of futurity and trusteeship, and how the artworks can come to be symbols of negotiated visions and of the learning process for individuals and communities.

Exploring the role of the arts for a transition to sustainability with a systems perspective leads to a consideration of two other important concepts (referred to earlier under the section "On Sustainability"): resilience and bio/diversity. Both are applied here to cultural as well as ecological systems. Nabhan suggests that cultural diversity "functions" on behalf of biodiversity.<sup>44</sup> The concept of biodiversity does not simply mean "species richness" – it is part of a system and therefore includes the "ecological complexes in which organisms naturally occur and the ways in which they interact with one another and their surroundings".<sup>45</sup> Nabhan cites evidence that suggests a correlation between areas where biodiversity exists and areas where cultural diversity also prevails. He states that "biodiversity can survive where Indigenous cultures have not been displaced or at least disrupted from practicing their traditional land-management strategies."<sup>46</sup> This means also where they have preserved their knowledge of fruits, plants and animals, of their use, and of how they interact with and relate to each other and their environment. On the basis of the link between cultural diversity and biodiversity, the arts can be instrumental in promoting both and in helping us to recognise the link between the two. They may be able to help articulate what Nabhan refers to as the cultural analogue of the biophilia hypothesis, "one which does not merely claim that cultural diversity is 'interesting' but one which explains why contact with cultural diversity makes us fully human."<sup>47</sup> Taking Nabhan's thought further, it may in fact be a role of the arts to "make us fully human".

Kagan and Dieleman claim that the arts inherently have the potential to foster cultural diversity as the equivalent concept to biodiversity, and thus promote also social and cultural resilience.<sup>48</sup> Meadows stresses the importance of these connections and explicates that "human cultures are the stock out of which social evolution can arise":

Insistence on a single culture shuts down learning. Cuts back resilience. Any system, biological, economic, or social, that becomes so encrusted that it cannot self-evolve, a system that systematically scorns experimentation and wipes out the raw material of innovation, is doomed over the long term on this highly variable planet.<sup>49</sup>

This cross-referencing between ecological and cultural systems is part of what Nabhan coins "cross-pollination". Nabhan ascertains that as much as plants and insects depend on cross-pollination, "artists and scientists also need cross-fertilisation or else their isolated endeavours will atrophy, wither, or fall short of their aspirations." He sees this as a requisite for sustaining over time, as a "survival necessity".<sup>50</sup> I suggest that the arts can function as a conduit for "cross-pollination" across a number of boundaries, such as discipline-specific boundaries and boundaries of interest, and indications of this have been discussed earlier in this essay, in particular with reference to the animation project in the Wimmera, where we saw collaboration between a science-based organisation and the artists.

## Epilogue

While it was not subject of this investigation to establish to what degree "Fresh & Salty" has fulfilled any of the roles carved out above, the actors – artists, collaborators, partners and their support network – have played out some of those and thus, "Fresh & Salty" has given the incentive for articulating the role of the arts in this essay. The three paradigm components, the nature of change and learning for sustainability required, and the program features identified above may assist in sketching out frameworks for the development of arts programs that intentionally set out to facilitate the transition to sustainability and the adoption of the ecological paradigm.

Internationally, the discussion on what the arts can contribute to the transition to sustainability has gained momentum. As "Fresh & Salty" has demonstrated, the arts can help for the concept of sustainability to "reach out to the people, as a cultural project".<sup>51</sup> It appears that the arts are particularly well placed to access the dimension of ethos, our perceptions, beliefs, values and norms – that what is most hidden from our direct awareness – more directly than other ways of knowing. The arts inherently have access to the intuitive and non-rational domains and can be actively employed to trigger



changes in perception. Since the nature of the artistic communication is aesthetic, it works through the imagination and thus “sparks imaginative receptivity”.<sup>52</sup> The arts play a most seminal role for the transition, since, as Sterling argues, the “ethos aspect of paradigm is the most fundamental aspect of knowing, and therefore is the key to change.”<sup>53</sup>

In intentionally designing an arts program to precipitate the transition to sustainability, the artists and their collaborators become what Kagan describes as “entrepreneurs in conventions”,<sup>54</sup> which, in extending Kagan’s definition, includes conventions in worldviews: those using the arts play on the rules of the dominant worldview. They help us to see the dominant paradigm that has been hidden from awareness. A questioning of the dominant practices and worldviews can occur with honesty, uninhibited by any imagined or real constraints. The arts give us the freedom to envision the unimaginable. They help us to experience what we have not yet experienced – third-order thinking, thinking under the new ecological paradigm. With this in mind, we can begin to imagine the powerful transformation that may be reflected in this statement of an interested passer-by on the project at Lake Wendouree featuring the large-scale ephemeral platypus earth drawing: “Seeing this image changes the way I think about Ballarat.”

## Notes

1. Dr Iris Bergmann is interested in visual methods and whole systems approaches for change for sustainability. She explores such methods as a way of knowing, as a means for communicating, and as a tool for decision-making. She applies visual methods, in particular photography, in various forms as a research tool. At the time of writing this essay, she was Research Fellow at RMIT University. The author would like to acknowledge the support of Professor John Fien and the Global Cities Research Institute at RMIT University; Associate Professor Linda Williams for introducing her to “Fresh & Salty” and Regional Arts Victoria (RAV); Dr Jenny Gidley for pointing her to Kagan and Kirchberg’s work; Dr Bill Langford and an anonymous reviewer for constructive and enriching commentary on the manuscript; and Liz Duthie and Sue Strano from RAV for their time for conversations, for providing background material on “Fresh & Salty” and for the invitation to the debriefing meeting with the artists, RAV coordinators, artistic advisor and mentors of the program.
2. Waste to be absorbed includes carbon, see B. Ewing, S. Goldfinger, A. Oursler, A. Reed, D. Moore, M. Wackernagel (2009), *Ecological Footprint Atlas 2009*, Global Footprint Network, Oakland.
3. Global Footprint Network (2008), September 23 2008 – Earth Overshoot Day – Media Backgrounder, [www.footprintnetwork.org/images/uploads/EO\\_Day\\_Media\\_Backgrounder.pdf](http://www.footprintnetwork.org/images/uploads/EO_Day_Media_Backgrounder.pdf) (accessed 25 April 2010). In 2010, Earth Overshoot Day was on 21 August, [www.footprintnetwork.org/en/index.php/GFN/page/earth\\_overshoot\\_day/](http://www.footprintnetwork.org/en/index.php/GFN/page/earth_overshoot_day/) (accessed 18 August 2010).
4. Project descriptions and artists’ statements are taken from a number of documents provided by RAV, including articles in two issues of *Groundwork*, a publication of RAV (Summer 2007 Issue 6, authored by Carolynne Hamdorf, and Winter 2008 Issue 7, various articles authored by Liz Duthie, Verity Higgins, Jo Grant, Deb Milligan), various project reports, a presentation given to the conference of the Australia Council of the Arts “The Arts at the Heart” in Alice Springs on 3-5 October 2008, a number of newspaper articles, photographs and videos of the artworks, and a video of the opening of the “Fresh & Salty” project in Ballarat. In addition, I draw on conversations with Liz Duthie, Regional Arts Development Officer in Swan Hill and state-wide coordinator, and Sue Strano, Manager, Creative Communities, at RAV, and on presentations and discussions of the debriefing meeting (see footnote 1) on 1 May 2008 in Melbourne. See also [www.rav.net.au/projects/past-projects/detail/2](http://www.rav.net.au/projects/past-projects/detail/2).
5. See footnote 4.
6. L. Duthie (2008), Project Coordinator of “Fresh & Salty” and Regional Arts Development Officer in Swan Hill. In conversation with I.M. Bergmann, personal notes by I.M. Bergmann, Melbourne.
7. See, for example, the collection of authors in S. Kagan and V. Kirchberg (eds) (2008), *Sustainability: A New Frontier for the Arts and Cultures*, Verlag für Akademische Schriften, Frankfurt am Main.
8. D. H. Meadows (1999), “Leverage Points: Places to Intervene in a System”, [www.sustainer.org/pubs/Leverage\\_Points.pdf](http://www.sustainer.org/pubs/Leverage_Points.pdf), p. 3. The other leverage points identified by Meadows relate to the system components buffers; feedback mechanisms; the structure of information flows (who does and does not have access to what kinds of information); the rules of the system (such as incentives, punishments, constraints); the power to add, change, evolve, or self-organise system structure; and the goals of the system.
9. S. Sterling (2003), *Whole Systems Thinking as a Basis for Paradigm Change in Education: Explorations in the Context of Sustainability*, PhD Thesis, University of Bath, Bath, UK, pp. 33, 90. [www.bath.ac.uk/cree/sterling.htm](http://www.bath.ac.uk/cree/sterling.htm) (accessed 28 June 2009).
10. D. H. Meadows in Sterling (2003), *op. cit.*, p. 68.
11. R. Beddoe, R. Costanza, J. Farley, E. Garza, J. Kent, I. Kubiszewski, L. Martinez, T. McCowen, K. Murphy, N. Myers, Z. Ogden, K. Stapleton, J. Woodward (2009), “Overcoming Systemic Roadblocks to Sustainability: The Evolutionary Redesign of Worldviews, Institutions, and Technologies”, *PNAS* 106 (8), pp. 2483-89.
12. This discussion of the ecological paradigm follows S. Sterling (2003), *op. cit.*
13. G. H. Brundtland, former chairman of the World Commission on Environment and Development, in S. Sterling (2003), *op. cit.*, p. 170.

- 
14. See, for example, T. Jackson (2009), "Prosperity without Growth: Economics for a Finite Planet", Earthscan, London. See, e.g., the Post Carbon Institute [www.postcarbon.org](http://www.postcarbon.org), [www.350.org](http://www.350.org) or the transition movement [www.transitionnetwork.org](http://www.transitionnetwork.org).
  15. S. Thompson (2008), "Environmental Justice in Education: Drinking Deeply from the Well of Sustainability" in J. Gray-Donald and D. Selby (eds), *Green Frontiers: Environmental Educators Dancing Away from Mechanism*, Sense Publishers, Rotterdam, pp. 36-58.
  16. D. H. Meadows (1999), *op. cit.*, p. 16.
  17. S. Sterling (2007), "Riding the Storm: Towards a Connective Cultural Consciousness" in A.E.J. Wals (ed), *Social Learning: Towards a Sustainable World*, Wageningen Academic Publishers, Wageningen, p. 78.
  18. S. Sterling (2003), *op. cit.*, p. 415.
  19. A.E.J. Wals and T.v.d.Leij (2007), "Introduction" in A.E.J. Wals (ed), *Social Learning: Towards a Sustainable World*, Wageningen Academic Publishers, Wageningen, pp. 17-32.
  20. Based on the sources cited in footnote 4.
  21. See note 4.
  22. See note 4.
  23. See note 4.
  24. See note 4.
  25. See note 4.
  26. See note 4.
  27. Photographs and video clips of this and the other projects can be viewed at [www.rav.net.au/projects/past-projects/detail/2](http://www.rav.net.au/projects/past-projects/detail/2).
  28. See footnote 4.
  29. Characteristics adapted from S. Sterling (2003), *op. cit.*, pp. 271-72, Box C.5: Some implications of a systemic view of education and learning.
  30. *Ibid.*
  31. See footnote 4.
  32. I thank an anonymous reviewer for pointing this out.
  33. Compare S. Sterling (2003), *op. cit.*, p. 54.
  34. "Why – what – how", adapted from S. Sterling (2003), *op. cit.*, p. 424, Table App.1.3: Domains of human knowing, experience and learning: a tentative list of descriptors.
  35. *Ibid.*
  36. D. B. Rose (2004), *Reports from a Wild Country: Ethics for Decolonisation*, University of New South Wales Press, Sydney.
  37. *Ibid.*, p. 187.
  38. *Ibid.*, pp. 186-87.
  39. *Ibid.*, p. 168.
  40. *Ibid.*, p. 175.
  41. *Ibid.*, p. 185.
  42. B. B. Jensen and K. Schnack (2006), "The Action Competence Approach in Environmental Education", *Environmental Education Research*, 12 (3-4), pp. 471-86.
  43. D. B. Rose (2004), *op. cit.*, p. 174.
  44. G. P. Nabhan (1998), *Cultures of Habitat: On Nature, Culture, and Story*, Counterpoint, Washington D.C., p. 28.
  45. Redford in G. P. Nabhan (1998), *op. cit.*, p. 20.
  46. G. P. Nabhan (1998), *op. cit.*, p. 37.
  47. *Ibid.*, p. 38.
  48. S. Kagan and H. Dieleman (2008), "Seven Points for an Agenda: Research and Action on Cultures and Arts for Sustainability" in S. Kagan and V. Kirchberg (eds), *op. cit.*, p. 562.
  49. D. H. Meadows (1999), *op. cit.*, p. 16.
  50. G. P. Nabhan (2004), *Cross-Pollinations: The Marriage of Science and Poetry*, Milkweed Editions, Minneapolis, pp. 12-13.
  51. G. Bachmann (2008), "Gatekeeper: A Foreword" in S. Kagan & V. Kirchberg (eds), *op. cit.*, p. 9.
  52. J. Quon (2005), "Phenomenology and Artistic Praxis: An Application to Marine Ecological Communication", *Leonardo*, 38 (3), p. 188.
  53. S. Sterling (2003), *op. cit.*, p. 429.
  54. S. Kagan (2008), "The Arts Effectuating Social Change: Double Entrepreneurship in Conventions" in S. Kagan and V. Kirchberg (eds), *op. cit.*, pp. 147-93.