



*Extended Abstract*

## **Designing a Placed-based Self-organising Ecotourism Plan: a case study for promoting the resilience of the Global Brain**

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The emerging Global Brain is a prime example of a complex, adaptive system for which it is of the highest priority that it be made resilient, i.e. able to withstand a wide variety of shocks or disturbances. Ross Ashby's Law of Requisite Variety [1] is used as a mental model to operationalize the concept of resilience in coupled complex adaptive systems. One way to deal with complexity and surprise is to increase the diverse range of capabilities that can be called upon when different stressful conditions arise. A resilient system is a system capable of: 1) adaptation, 2) evolution. While adaptation can be achieved by investing in the absorption of shocks through investing in the structural properties of a system, evolution requires flexibility and decentralised architecture [2, 3]. Therefore, a type of robustness that leaves enough space for the introduction of novelty and the selective pressure of evolution needs to be explored in the discourse of resilience. A resilient system has been considered to have specific adaptive capacities that enable it to make decisions about trade-offs that insure its stability whilst leaving sufficient flexibility for transformation [4]. In this paper, I emphasise that the combination of a centralised and decentralised management mechanism can create the right conditions for the emergence of a resilient, adaptable, and evolvable system. The decentralised style of management is called the adaptive governance mechanism [5] and is currently under development as an alternative to the traditional command and

control (C2) management of social-ecological systems [6]. However, the lack of a sound theoretical basis that explicitly demonstrates the relationship between decentralisation, top-down control, the required conditions for resilience and emergence of the collective intelligence (i.e., a Local Global Brain) is still evident.

Ashby (1958) in the law of Requisite Variety states: 'the larger the variety of actions available to a control system, the larger the variety of perturbations it is able to manage or only variety absorbs variety [1]'. Since a system is resilient only if it can absorb changes that are arising from shocks and stressors while dynamically maintaining its key functions and structures [7], and since the impacts of change and stressors unfold in complex and nonlinear ways [8], this paper, through the application of a decentralised ecotourism management system [9], illustrates that in addition to cultivation of diversity as a buffering method as Ashby (1958) demonstrates, fostering a resourceful management/leadership mechanism that is able to harness the utility of diversity also has to be an integral part of a system's overall resilience and self-sustainability roadmap. The case study used in this paper aims to demonstrate that:

An example of a placed-based adaptation strategy that is focused on harnessing the collective intelligence of the local community can be a potential way to empower communities' capacity for self-organisation, self-sustainability, coordination and learning.

Diversity can be integrated into the governance process as an adjustment parameter that, if it is rightly managed and designed in a system, can be used as a tool to nudge a system's trajectory of evolution toward a higher degree of wellbeing [10], resilience and self-adjustability [11].

A combination of the general principles discussed earlier and the lessons learned in this local community case may help us to formulate a strategy for attaining a sustainable, resilient, and collectively intelligent system at the global level i.e. a Global Brain [12].

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