

ESSAY 04

CRITICAL REFLECTION

1.1	Exposition: Connecting and integrating	131
4.2	Contribution	132
4.3	Conclusion	133





4.1 Critical Reflection

4.1.1 Exposition: Connecting and Integrating

This section is a reflection on the dissertation and assesses whether the consolidated data and design address the research question, objectives, and architectural intentions. The central challenge in this dissertation was to consider and explore how the vernacular design of the Melusi informal settlement could be used in transformative ways to increase the community's capacity to participate in the settlement's regenerative development. The architectural intentions were to upscale the vernacular innovation and principles. Secondly, to understand the role of the architect in environments that already exhibit high capabilities in providing for themselves.

Central to regenerative design thinking are the concepts of 'place' and 'place-based approaches' (Cole et al. 2013; Mang et al. 2016). In this study, the concepts were considered through an investigation into the vernacular design and technology of the Melusi informal settlement. Aligned with the regenerative principle of co-evolution, a whole systems approach was supported as advanced in recent regenerative design scholarship (Cole et al. 2013; Mang et al. 2016; Reed 2007). Therefore, the exploration into the vernacular as an aspect of the built environment system was done not in isolation, but in conjunction with an understanding of the socio-cultural and natural systems as interconnected parts of a whole. Three strategies were employed to integrate the above-mentioned systems towards cultivating coevolution.

The first strategy was to foster emergence through strengthening existing stakeholder relationships within the community. Through participatory research, community stakeholders were identified and engaged through various methods to determine the community needs and the roles each could play in meeting them. Through a

needs analysis, the expressed and latent needs and immediate were identified. Through a stakeholder analysis, the possibilities for building social capital were also identified. Subsequently, a 'stakeholder evolution' that envisioned the strengthening of social connections between stakeholders as each undertook small-scale interventions using their existing capabilities and resources was drawn up. The spatial implications of the stakeholder evolution were realised as a five-phased urban framework. An urban acupuncturist approach was considered for the first phase addressing the immediate needs with small-scale interventions from local effort that would catalyse increased social capital, connections, and participation towards large-scale impact. The project would over time evolve into interventions of greater scale in the subsequent phases.

The second strategy considered upscaling social innovation inherent in the Melusi informal vernacular design and technology. Two approaches were devised to study the vernacular. Firstly, Melusi's design was established as a vernacular using Rapaport's (1999) framework by which its product and process attributes were understood as a generative model. This model was also understood as a set of underlying rules that the community adhered to resulting in the visual coherence perceived within the settlement. A literature review and precedent analysis were conducted to determine an architectural approach through which the lessons and principles from the vernacular could be translated into a regenerative design intervention. Secondly, a spatial analysis of the vernacular drawing from Boettger's (2014) spatial notation framework was undertaken. The resultant iterations envisioned a spatial layering informed by the vernacular through which the project could be spatially embedded within its context, particularly on the site as a liminal space between the settlement and the scarred quarry landscape.

The third strategy was to foster emergence through the transformative application of vernacular material and technology material to facilitate its upscaling. The vernacular technology was understood as a set of principles which informed the introduction of a new construction material; industrial hemp, whose properties would encourage collaborative construction, ease of assembly and disassembly. This also resulted in the iteration of the project program around hemp production, growing and processing, mainly for building materials but also for products that strengthen the entrepreneurial arm of the project. The last strategy was to harness the potential of the quarry as a water source through designing for circularity in the water systems. It was envisioned as a system in which the grey water, rainwater and stormwater systems were connected, and filtration and treatment centralised. These systems also fed into the hydroponics system and supplied the hemp cultivation.

4.1.2 Contribution

Informal settlements have often been marginalised by or neglected in sustainability discourse and interventions. Today, there is a call to shift from sustainability to regenerative design, however, regeneration is hardly mentioned

in informal settlement policy let alone in interventions. In using emergence in informal settlements through engaging local efforts and innovation, and the latent potential of the site's biophysical features, connections can be made to build capabilities for regeneration. This study has considered using emergence inherent in the Melusi's stakeholder relationships and informal vernacular design and construction to foster the settlement's regenerative development. This was through considering:

- how local efforts can be upscaled by fostering strong stakeholder relationships and a stakeholder evolution,
- how the design inherent in informal settlements can be established and studied as a vernacular, and
- how the latent potential of scarred landscapes can be harnessed.

4.1.3 Conclusion

With an increased advocacy for a shift to regenerative development from sustainable development, it is important for design practitioners to establish and advance their role in economically distressed communities. Harnessing and building the existing capabilities exhibited in the social connections and the vernacular design becomes important and critical to achieve this. Understood throughout this process was the need to establish connections and strengthen the richness of relationships between community stakeholders, and the natural and built environment systems. Understanding the dynamic and evolving role of the architect throughout the process was also important in this study. In the initial stages of the process, that is during the participatory research phase, the architect was a facilitator, engaging stakeholders in conversations about the betterment of the community and identifying opportunities for strengthening social networks. The architect was then a co-author of the urban vision with the stakeholders. In the subsequent phases, the architect's role then evolved into facilitating spatial definition and intergration of systems. In the design and detailing phase, the architect engaged the lessons learned from the existing vernacular design as guiding principles for the precedent analysis and design, informing its spatial, material, and technological applications.

In conclusion, this dissertation sought to engage the regenerative design concept of 'place' by investigating how to engage the social and material dimensions of Melusi. This was done through strategies that fostered strong and evolving stakeholder relationships and the upscaling and transformative application of local innovation exhibited in the vernacular architecture. As the project is largely theoretical, except for the participatory research engagement, its success is hard to assess. However, the aim of developing a strategy for engaging local effort and drawing from and applying the lessons inherent in the urban vernacular design of informal settlements was achieved.

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