Floriade 2012 – From Cradle 2 Cradle™ philosophy to Realization. Emerging Integral Approaches at a Large Land Development Project in the Netherlands

English summary of a draft report in Dutch commissioned by the Floriade 2012 BV and ARCADIS entitled: *Floriade 2012 – Van Cradle 2 Cradle™ principles naar implementatie.*

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This paper discusses the development and implementation of an integral sustainability framework, inspired by Cradle to Cradle™ principles, at a large land development project and world horticultural exposition in the Netherlands. The focus of this study is the development of novel monitoring and reporting methods that have been co-developed to account for the complexity of this cutting-edge project. For this purpose "pattern language" was used, developed by Christopher Alexander. The sustainability reporting work at the Floriade 2012 is on-going. The current phase of the study focuses on integrating the lessons learned from applying pattern language with more conventional sustainability reporting methods.

Introduction

The Floriade is a large world horticulture exposition that is held every ten years in the Netherlands. Held from April to October 2012, the sixth edition of the Floriade is being organized by the Region Venlo Floriade 2012. (http://www.floriade.com/) There will be approximately 100 domestic and 40 foreign participants expecting over two million visitors. The entire area comprises 66 hectares (163 acres) and, once the Floriade closes its gates, it will continue life as a green office and educational park, named "Venlo GreenPark." Venlo GreenPark/Floriade is one of the first major sustainable land development projects in Netherlands inspired by the Cradle to Cradle™ (C2C) philosophy. This C2C framework developed by William McDonough and Michael Braungart was originally applied to buildings and manufacturing design and is now being adapted for land development.[1]

In a large-scale iterative process with multiple stakeholders, initiated by the local Chamber of Commerce, a set of principles as well as vision and mission statement were developed for the area: the Floriade/Venlo principles (http://www.floriade.com/organisation/floriade-venlo-principles). These principles are inspired by C2C™ and must be taken into account by all contractors and organizations that want to offer services. The principles with a brief interpretation are presented below.

> We are native to our place—starting where you're at and listening to what the place has to say.
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> Our waste = food—thinking in material, water and energy cycles and closing the loops.
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> Sun is our income—the only true source of abundant, sustainable energy is the sun.
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> Our air, soil, and water are healthy—traditional environmental issues

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[1] Cradle to Cradle and C2C are registered trademarks of McDonough Braungart Design Chemistry, LLC. (MDBC) In this write-up Cradle 2 Cradle and C2C are used as references. It is not the intention to infringe on the rights of MBDC ().

> We design enjoyment for all generations—for visitors of all generations, but also for the future.

Major land development projects in the Netherlands are highly complex due to the limited physical, cultural and regulatory space available in this densely populated country. Sustainable development requires additional ingenuity, knowledge and foresight. Traditionally, land development and other highly complex projects have been managed by drafting ever more detailed scopes of work and bid contracts. It has been the contribution of the Floriade team and other pioneers to acknowledge that these techniques don't work well anymore for such projects and to experiment with more integral and systems-oriented approaches. This is further evident in the mission statement that leaves room for emergence: "Our mission is to use the Floriade/Venlo principles as an engine for innovation."

Research

This study examines the following question: "How can we exemplify and account for the added value at the Floriade as a result of using the Floriade/Venlo principles and other advanced approaches to project management?" Ten people were interviewed that all have hands-on involvement in the design and implementation of Floriade/GreenPark and responsibility in daily operations. The key question posed was: " What are the significant challenges you encounter in implementing the Floriade principles?" Bear in mind that the Floriade has a fixed opening date and budget, so the project leadership is under severe pressure to make it happen and to make it happen sustainably.

Not only does management of today's complex projects require novel approaches, monitoring and reporting these projects require similar evolutionary approaches that allow for the capture of this complexity. For the purpose of describing the findings of this research, a reporting system that was initially developed in the seventies was adapted—pattern language, developed by architect Christopher Alexander. (http://www.patternlanguage.com/)

The idea behind Alexander's pattern language is that a well designed space, i.e. a building, is "alive." Mr. Alexander and his team set out to capture how one can accomplish this. For this purpose he used patterns that were linked in a network. There would be higher and lower patterns, dealing with more conceptual or more detailed themes, respectively. The network of appropriate patters could be followed many times, never ending up with identical results, yet capturing the essence of what's required for a "living" and functional space or structure. To make his language practical, Alexander worded each pattern as a question followed by an instruction. Essentially, Alexander brought the observer back into the equation, allowing for subjective experience.

Results

From the interviews at the Floriade, eleven patterns or themes emerged. It turns out that the majority of the patterns relate to the internal, process side of the development project, e.g., building trust, maintaining enthusiasm in the team, expectation management, working with uncertainty, monitoring and communicating sustainable accomplishments.

This finding indicates that those responsible for design and implementation of large sustainable projects (in this case land development at the Floriade) are wrestling with the internal subjective issues and not so much with technical or hardware questions. This is a new insight, because the vast majority of sustainability literature has been on technical case studies and examples. As such, much more attention and support is needed for integrating subjective and objective elements into management of today's complex projects to be sustainable and resilient. However, as was pointed out by one of the interviewees, inspirational sessions by facilitators that had no technical knowledge didn't exude effect either. What is required is a new type of leadership that truly integrates subjective and objective wisdom and how to apply it. Pattern language is suited here, because process patterns and more technical patterns can be easily ranked and linked to each other. This was done in the full research report which includes a number of more technical patterns, e.g., water and materials management.

It was further noted that additional innovation is needed regarding sustainability monitoring and measuring of relevant conditions. Traditionally, conditions are measured with objective indicators (e.g., percentage green energy, recycled materials), but these indicators only account for objective conditions. They are literally analytical, which implies that they provide objective snapshots of elements of the project in isolation. They say nothing about coherence, the perspective taken, the quality of progress or process, let alone the future experience of the result being "alive" or not.

A new approach to monitoring could entail the following. It starts with the comprehensive vision for the entire project and the surrounding area. On this basis it may be determined which conditions and indicators should be monitored and why. The new approach would recognize the importance of new and often subjective conditions, such as commitment, connection, trust, degree to which vision and principles are integrated, etc. Additional research is needed on how these conditions may be represented in qualitative or semi-quantitative indicators. Such new indicators may then be used in conjunction with more traditional indicators for a comprehensive picture of the degree of sustainability for the project, complemented with overarching pattern development.

Integral Lessons Learned

Land development and other projects that will have a major impact on the cultural, social and natural environment should be developed sustainably.

The people that execute a large sustainable land development project, such as the Floriade, are likely to have the most difficulty with subjective issues, not with technical ones.

It is advised to develop a clear vision supported by principles that describe the framework in terms that are relevant for the situation and fully comprehended by team and stakeholders alike.

Over-arching, more integral and systems-oriented frameworks (e.g., Cradle 2 Cradle™ or the Natural Step™) are well suited for major projects or undertakings, while they still allow for more segmented sustainability frameworks (e.g. people planet profit or those based on extensive, objective monitoring protocols or management plans).

Not only are novel, integrated methods needed for designing and executing complex sustainable projects – also evolved reporting, communication and monitoring approaches are needed.

The use of carefully developed principles, such as C2C principles, during the design phase allows for numerous solutions at all levels of the project.

Strict time and budget constraints increase the likelihood for innovation and openness to new consciousness and associated solutions.

More attention and support is needed for integrating subjective and objective elements into management of today's complex projects to be sustainable and resilient.

New forms of process or change management are needed that truly integrate psycho-cultural and techno-organizational wisdom. Or in other words, that link process to purpose and implementation.

Pattern language is suited for reporting on advanced, systems-oriented sustainability initiatives.

New ways of monitoring includes subjective, qualitative indicators and should start at the onset, with a thorough understanding of the vision for the entire project.