

# Extending Contemplative Landscapes in a Tropical City-state

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## Introduction

The recent research on Contemplative Landscapes has shown that they evoke positive brain activity patterns, reflective of a state of better mental wellbeing (Olszewska-Guizzo, A., Sia, A., Fogel, A., Ho, R. 2022). The Design Guidelines for Contemplative Landscapes, published by the National Parks Board (NParks) in 2022, leverages on such research findings to guide landscape professionals on how to apply the Contemplative Landscape Model (CLM) to design and implement landscapes that ensure mental well-being.

The CLM can be put into action by first identifying existing Contemplative Landscapes nestled within Singapore's parks, gardens, and urban areas, which are accessible to all. Secondly, newly designed Contemplative Landscapes can be curated through interventions to increase the CLM scoring of existing or upcoming landscape projects.

## What is a Contemplative Landscape?

The concept of Contemplative Landscapes was introduced over a decade ago by Dr. Agnieszka Olszewska-Guizzo (Olszewska, A., Marques, P. F., & Barbosa, F. 2014). These landscapes have the potential of inducing positive changes in the brain activity of the viewer even with passive exposure. Over the years, through series of neuropsychological experiments, Contemplative Landscapes have been shown to encourage contemplation, introspection, and a sense of peacefulness, with research indicating its positive effects on mental health and well-being of people in high-stress environment (Olszewska-Guizzo, A. 2023). They are characterised by features such as quiet seating areas, natural elements, and scenic views that encourage reflection and relaxation.

Contemplation is a key aspect of passive recreation, involving activities with minimal use of facilities and low environmental impact, such as walking, hiking, bird watching, and other sedentary pursuits. It is associated with immersing oneself in natural scenes while simply relaxing and being in nature, which is a primary motive for urban dwellers visiting parks.

Contemplative Landscapes offer self-directed passive viewing of natural scenes and are commonly found in settings such as gardens or parks, aiming to enhance the mental health and well-being of users (Olszewska-Guizzo, A. 2018).

The definitions of specific healing garden types, such as therapeutic garden and contemplative garden, often cause confusion. It's important to note that Contemplative Landscapes may be found in therapeutic gardens.

Therapeutic gardens serve as a dedicated space for horticultural-based interventions. These gardens are purposefully designed to meet the physical, psychological, and social needs of the individuals who use them. Plants and plant-based activities or physical activities are carried out in these gardens as remedial interventions to support the goals of the individuals. (Elizabeth R. Messer Diehl, 2017)

Contemplative gardens are designed to encourage a restorative experience, emphasising emotional and psychological restoration rather than physical ability. These landscapes often focus on reflection and passive viewing of natural scenery.

Contemplation is often defined as looking beyond and examining issues that are larger than oneself. This distinction suggests the inclusion of long views in the landscape to facilitate introspection (Elizabeth R. Messer Diehl, 2017).

### Identifying Existing Contemplative Landscapes in Singapore

Singapore has an extensive network of tree-lined streets, park connectors, around 400 parks, and four nature reserves.

By 2030, the city-state will develop up to 300km of Nature Ways and 500km of park connectors. This helps to ensure that every household in Singapore is within a 10-minute walk from a park. The provision of nearby open spaces or neighbourhood parks for recreation in residential areas is an essential component of urban planning. 'Nearby nature' is crucial to people; the natural environment is often experienced as a preferred or aesthetic setting that plays a significant role in recovering from mental fatigue, providing therapeutic benefits (Kaplan R and Kaplan S, 1989).

Elderly participants engaged in plant and nature-based activities, such as making herbal scented bags, and gardening at Yishun Pond Park Therapeutic Garden.



A tranquil setting with clear waters and open skies at Bukit Batok Nature Park, an ideal place for reflection and relaxation.



The increasing burden of mental health issues in urban populations is an urgent concern, placing significant pressure on the healthcare system. Projections indicate a rise in individuals facing conditions such as cognitive disorder, social isolation, frailty, and other disabilities (Olszewska-Guzzo, A. 2018). Contemplative Landscape design has been shown to improve the state of mental well-being. The intention is to make these landscapes highly accessible to the public throughout Singapore, promoting a well-balanced and healthy mental state amongst the community. Multiple research studies have indicated that interaction with the natural environment and green spaces can significantly enhance the well-being of various demographic groups.

Furthermore, research on Contemplative Landscapes suggests that specific features can unlock more potential health benefits as compared to generic green spaces. This highlights the importance of considering the unique qualities of natural environments in promoting well-being. For example, naturalistic elements such as water, diverse planting, and layered, undulating landscapes are more effective in promoting well-being compared to generic flat spaces that lack such elements.

Creating Contemplative Landscapes near healthcare facilities provides opportunities for hospital visitors and patients to enjoy an array of nature-based experiences to help improve their mental health and well-being. Such efforts are already in place. For instance, Khoo Teck Puat Hospital is just a short 300m walk away from Yishun Park and 500m walk away from Yishun Pond Park Therapeutic Garden both of which have incorporated Contemplative Landscape scenes. The proximity of these green spaces to healthcare facilities makes it easily accessible for users of these facilities to benefit from such natural environments. Promoting opportunities for patients and the public to stay connected with nature can be a valuable approach to addressing the evolving healthcare needs of Singapore's ageing population.

Yishun Pond Park Therapeutic Garden (top) and Yishun Park (bottom) are located within a 500m walking distance from Khoo Teck Puat Hospital.



Utilising the CLM, landscape architects from NParks are assessing existing parks, gardens, and open spaces throughout Singapore to identify green spaces with high contemplative quality, including therapeutic gardens and non-urbanised areas within parks and urbanised areas.

### **Contemplative Landscapes Case Studies**

#### Bishan Ang Mo Kio Park (Viewing point) – Non-Urbanised Green Area

The Riverside gallery at Bishan-Ang Mo Kio Park showcases a picturesque meandering river, adorned with lush banks of wildflowers and a variety of terrestrial and aquatic plants that create diverse micro-habitats. Strategically positioned resting spots, shaded by canopy trees within the serene landscape, offer prime views of the undulating landform, providing users with a visually attractive and restorative environment.



Top / Bishan Ang Mo Kio Park (Viewing point).  
Middle / Singapore Botanic Gardens Learning Forest.  
Bottom / Esplanade Theatre Outdoor Garden.

### Singapore Botanic Gardens Learning Forest – Non-Urbanised Green Area

The Learning Forest at the Singapore Botanic Gardens features a lush, restored lowland rainforest and freshwater wetland ecosystem. A network of boardwalks guides visitors to tranquil resting spots for reflection and relaxation. The open spaces among the greenery and water bodies create a pleasant scene for respite and solitude, allowing for a peaceful retreat. The area also supports a high diversity of plant and animal species, thriving within this natural environment.

### Esplanade Theatre Outdoor Garden – Urbanised Green Area

The Esplanade Outdoor Theatre is nestled amidst lush greenery, with the entrance transformed into a wild garden landscape, where the combination of softscape and hardscape features creates a contrast to the urban environment. Natural lines meander, encouraging visitors to look up to the sky. The landscape showcases various unique tree species, such as the Rainbow Gum Tree (*Eucalyptus deglupta*) with its colourful bark and the Gelam Tree (*Melaleuca cajuputi*) with its distinct papery bark. Outdoor benches are thoughtfully placed among fragrant and colourful plant species to enhance the site aesthetics and mental well-being of visitors. Furthermore, the benches are strategically positioned to face the water feature, effectively masking noise from city traffic.

With NParks' aim of providing a park within 10-minute walk for every household by 2030, the Contemplative Landscapes in parks initiative offers an easy solution for residents to gain mental well-being benefits through just a few minutes of viewing the Contemplative Landscape scenes. These sites can also serve as a support for health interventions through nature-prescription programme by healthcare institutes, promoting mental well-being. Medical practitioners can encourage patients and users to visit these sites, engaging in self-directed and passive interactions with nature. NParks will progressively identify Contemplative Landscapes throughout Singapore, collaborate with partners to introduce them across the island, and publicise these locations for the public to enjoy, along with providing information on their benefits.

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## Curating New Contemplative Landscapes

While Singapore already has an extensive network of green spaces including nature reserves, nature parks, parks and park connectors, the option of adding more green spaces for recreation to the highly urbanized and land-scarce city-state is limited. To maximise the well-being benefits of existing parks, it is useful for landscape architects to curate new Contemplative Landscapes within these green spaces. For example, since 2016, NParks has introduced 14 therapeutic gardens, which are designed based on scientific research to facilitate and encourage people's interaction with nature. Each area is carefully planned to provide visitors with a serene and tranquil environment that meets the physical, psychological, and social needs of those using the garden.

In the design of therapeutic gardens, Contemplative Landscape scenes are carefully curated, involving the thoughtful selection and arrangement of elements that align with the characteristics of the CLM. Natural elements such as water features, terrain, and existing trees, along with sensory experiences, are utilised to create environments that foster mental well-being and encourage contemplation. The design of the therapeutic garden considers both aesthetic elements and functionality to ensure that the gardens effectively serve their intended purpose as spaces for therapeutic horticulture, relaxation, and healing.

The KPMG Wellness Garden at East Coast Park offers a 360-degree panoramic view, encompassing both contemplative and therapeutic components, such as the pond, coastal landscape and horticultural activity spaces. The showcase of layered landscapes creates a sense of tranquility, with the elevated deck standing out as the signature viewpoint of the therapeutic garden, offering a distinct perspective of the overall garden. In addition to the stunning coastal and pond views, users can observe the highly diverse landscape, appreciating its various forms, colours, and habitats, including aquatic and coastal plants.

NParks is currently exploring opportunities to apply the CLM into new sites and expand its application beyond parks and gardens to other public spaces and future developments. The Design Guidelines for Contemplative Landscapes publication provides an overview of the need for CLM, instructions for scoring, design considerations, and case studies in Singapore and internationally. To strengthen understanding of the guidelines, CUGE offers training courses for professionals and students in landscape architecture, urban planning, and architecture, with the goal of equipping the industry to effectively utilise the CLM.

## Exploratory Initiative - Contemplative Landscape Automated Scoring System (CLASS)

The concept of Contemplative Landscape has artistic origins but with the rigorous science behind the testing of the CLM, it has evolved to become a fully operational, technical term. This has unlocked diverse opportunities for its use by computational systems, such as the automatization of landscape evaluation.

In their work, Navickas et al. (2016) introduced the Artificial Intelligence model CLASS, which stands for Contemplative Landscapes Automated Scoring System. It was designed to verify the consistency and reproducibility of the CLM scoring process. Subsequently, researchers from NeuroLandscape expanded upon CLASS, transforming it into a system. This system, utilizing CLM, can autonomously assess any number of landscape scenes basing solely on appropriately captured digital images, eliminating the need for experts to evaluate and optimize spaces in person. The implementation of CLASS facilitates a rapid and cost-effective evaluation and CLM-oriented optimization of numerous landscapes.

CLASS has the potential to serve as an automated tool for landscape designers, allowing them to assess the outcomes of their projects efficiently.

This methodology could also benefit policymakers in the evaluation of existing and planned interventions, aiding in the decision-making process.

CLASS was at its time an exploratory work and still has limitations (for example, landscape photos have specific requirements). A crucial direction for future development of the CLASS would be to relax the constraints associated with the photo requirements. Another future research direction on CLASS involves adjusting it to an area of interest (for example an entire city) through the integration of CLASS with digital mapping tools. Additionally, CLASS could take into account local characteristics, such as climate, cultural elements, local flora and fauna, among other highly site-specific features. Currently, the NeuroLandscape team is leveraging the new state-of-the-art Technology to expand CLASS aiming to create a first of its kind tool known as the Mental Health Digital Twin (MHDT). This will facilitate the comprehensive study of the status of mental health impacted by the Contemplative Landscapes in selected European cities as supported by the GreenInCities, Horizon EU grant (2024). The development of the CLASS represents a significant potential advancement in research for the CLM model. Such advancements are innovations that NParks may consider.

## Conclusion

This article showcases examples of Contemplative Landscapes in Singapore, which offer visitors the opportunity to take a few minutes from their busy schedules to experience the positive mental well-being effects associated with such landscapes. Landscape professionals can refer to these examples and the Design Guidelines for Contemplative Landscapes to assist them in implementing design interventions to elevate the quality of upcoming landscape projects and to mainstream the adoption of CLM. The passive exposure to such landscapes, as well as the integration of natural elements within city environments, can play a significant role in shaping positive mental health outcomes and contribute to a more liveable Singapore.

Scan here for a digital copy of the Design Guidelines for Contemplative Landscapes.



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