

Method Abstract

Urban Forestry around the world is investing in ambitious projects that can be described as Green Infrastructure consisting of ‘green assets’ such as trees, parks and gardens that provided functional value. When integrated with stormwater management approaches consisting of ‘blue assets’ such as raingardens, bio-retention, and infiltration systems, Blue-Green (Living) Infrastructure emerges. Living Infrastructure incorporating natural systems that provide sustainable triple bottom line (3BL) 1) ecological, 2) amenity and 3) economic benefits associated with integrated urban greening and stormwater management. This means trees can be viewed as Living Infrastructure and should be viewed as being no different from Grey Infrastructure (buildings, roads, and other urban constructions) investment that provides essential services. Design, construction, and maintenance of Grey Infrastructure is structured and complex and this is also true for Living Infrastructure.

In 2018 Matthew Daniel and Owen Richards came together after identifying synergies within respective disciplines attributed to failing urban green assets. Their collaborative insights and assessment of several project sites has defined a new method, the Integrated Water & Soil Regenerative Method (IWSRM). The IWSRM is a collaborative method where specialist Arboriculturists and Environmental Engineers communicate, measure, and provide evidence-based knowledge and assessment of specific site natural system function. Matthew and Owen have identified that Urban Water Cycle and Plant and Soil Health are interconnected and in many cases are damaged beyond self-repair, ultimately deemed unsustainable in a changing climate. This leaves trees prone to a plethora of plant Health Care issues including poor canopy function, root development and pathogen activity. This has a cascading effect on natural system health status reducing the capacity of Living Infrastructure to maintain or improve health status, provide microclimates, retaining moisture to cool cities and increasing soil carbon to clean air.

The effective integration of the two typically siloed disciplines 1) Arboriculture and 2) Environmental Engineering within the IWSRM has shown to be able to maximise 3BL benefits and climate adaptiveness of bespoke Living Infrastructure Solutions. Arboriculture is the industry tasked with individual tree management. It is primarily focused on risk mitigation and applies a subjective human interpretation in assessing the tree and referred to as Visual Tree Assessment (VTA). Environmental Engineering incorporates assessment of the water cycle to determine most practicable, fit for purpose management solutions primarily focused on risk mitigation to the environment and community.

The combined expert opinions presented in this report provide a basis to support the argument that greater detail in assessment, development, and management of Urban Forest projects is required when natural systems and land use types are combined.