

Table S1. Stormwater Management Objective Comparison between Sustainable Development Goals (SDGs), International Water Association (IWA) Principles for Water Wise Cities (WWC), Australia Water Sensitive Cities (WSC), Singapore Active, Beautiful, Clean (ABC) Water and China Sponge City Construction (SCC)

Objective classification	Specific objective	SDGs (2030)	IWA Principles for WWC	Australia WSC	Singapore ABC Water program	China SCC
Stormwater system	Surface water control	√	√	√	√	√
	System performance	√	√	√	√	√
	Economic sustainability	√	√	√		
	Technical Innovation	√	√	√	√	
Integrated management	Environmental governance	√	√	√	√	√
	Disaster resistance	√	√	√	√	√
	Resource efficiency	√	√	√	√	√
Social engagement	Public participation	√	√	√	√	
	Scientific governance	√	√	√		
Urban development	Urban space quality improvement	√	√	√	√	√
	Public infrastructure renewal	√	√	√		
	City resilience enhancement	√	√	√	√	√

Integrated management	Environmental governance	Adoption of innovative design and equipment							
		System optimization							
		Restore water body and ecological environment	√			√	√	√	√
		Improve the quality of surface water source						√	
		Water security and sanitation		√		√	√	√	
		Increase biological diversity							
		Restore ecological habitat							
		Protect areas with high ecological values							
		Improve groundwater quality				√			
		Groundwater recharge	√			√			√
		Watershed wide impact			√			√	√
		Disaster resistance	√		√	√		√	√
			Drought mitigation and defense						
Resource efficiency	Stormwater harvesting and reuse				√	√	√		

		Reduce cost of grey infrastructure					
		Pipe damage control	√		√		√
		Reduce energy consumption					
		Reduce greenhouse gas emission					
		Reduce potable water supply				√	√
		Citizen's willingness to pay					
		Increase waterside activities					
		Increase public educational significance					
		Increase public activity space					
Social engagement	Public participation	Shared ownership, management and responsibility of the public					
		Preparedness for and response to extreme weather events					
		Local community participation in water-related planning					

		Organize and carry out community activities		
		Information transparency	√	√
		Water-related business opportunity (industrialization)		
		Assessment of professional capacities.		
	Scientific governance	Inter-disciplinary, inter-agency cooperation		
		Participation of stakeholders and policy makers.	√	√
		Assessment of leadership capability		
		Multi-sectoral benefits		
		City livability and landscape improvement		
Urban development	Urban space quality improvement	Consider water as a major factor of urban planning and design		
		Activate blue-green space		

	Increase vegetation coverage.						
	Improve city aesthetics						
	Increase recreational space						
	Increase property values						
Public infrastructure renewal	Construction of multifunctional water-related infrastructure						
	Accessibility and affordability of water-related public facilities						
City resilience enhancement	Adaptability to extreme weather	√		√		√	√
	Urban heat island effect mitigation					√	

SWMM - Storm Water Management Model, SUSTAIN - System for Urban Stormwater Treatment and Analysis Integration, MUSIC - Model for Urban Stormwater Improvement Conceptualization, DANCE4Water - Dynamic Adaption for eNabling City Evolution for Water, UrbanBEATS - Urban Biophysical Environments And Technologies Simulator.