

Preface

A sponge city (Chinese: 海绵城市) is a new urban planning model in China that emphasizes flood management via strengthening green infrastructures instead of purely relying on drainage systems, proposed by Chinese researchers in early 2000 and accepted by the Chinese Communist Party (CCP) and the State Council as nationwide urban construction policy in 2014.^{[1][2][3]} The concept of sponge cities is that urban flooding, water shortage and heat island effect can be alleviated by having more urban parks, gardens, green spaces, wetlands, nature strips and permeable pavings, which will both improve ecological biodiversity for urban wildlife and reduce flash floods by serving as reservoirs for capturing, retaining and absorbing excess storm water. Harvested rainwater can be repurposed for irrigation and treated for home use if needed. It is a form of a sustainable drainage system on an urban scale and beyond.

Sponge city policies are a set of nature-based solutions that use natural landscapes to catch, store and clean water; the concept has been inspired by ancient wisdom of adaptation to climate challenges, particularly in the monsoon regions in southeastern China.^{[4][5][6]} According to Chinese authorities, "Sponge cities are part of a worldwide movement that goes by various names: "green infrastructure" in Europe, "low-impact development" in the United States, "water-sensitive urban design" in Australia, "natural infrastructure" in Peru, "nature-based solutions" in Canada. In contrast to industrial management, in which people confine water with levees, channels and asphalt and rush it off the land as quickly as possible, these newer approaches seek to restore water's natural tendency to linger in places like wetlands and floodplains."^[7]

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In the present book, ten typical literatures about sponge cities published on international authoritative journals were selected to introduce the worldwide newest progress, which contains reviews or original researches on sponge cities. We hope this book can demonstrate advances in sponge cities as well as give references to the researchers, students and other related people.

ⁱ https://en.wikipedia.org/wiki/Sponge_city