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# The Sustainable and Resilient Landscape Design to Flood (Case studies: Resilient projects in China)

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## Abstract

"Sustainability" is one the newest subjects in recent decades. The definition of sustainability is the study of how natural systems function, remain diverse and produce everything it needs for the ecology to remain in balance. One of the sustainability approaches is "resilience". The term "resilience" has different concepts. Generally, it means the ability of a system to recover from disturbing influences. This research discuss about "ecological resilience" and resilience to floods as a post-disaster response. This issue is very significant in coastal cities that are flood prone. Seasonal floods in these cities and villages caused blocking roads, financial losses and casualties. So it is essential to design these areas in a way that create environmental sustainability and flood management to survived people and restore habitat. Different article is written in this issue such as resilience definitions, urban resilience, ecological resilience, social resilience, and their aspects and effects. The aim of this article is to clarifying the resilience term in the field of ecology and evoking the design features of flood adaptation in 5 case studies. Current article is a reviewing type and consists of three parts: the first part is about concepts of the term resilience and especially "ecological resilience" issue. Second part is about why resilient design is important and third part is about how "ecological resilience" could be efficient (in case studies). The data collection method is a library study and electronic library resources. Through this research, it was concluded that by ecological resilience approach, flood resilience or flood adaptation is more efficient than flood resistant. On the other hand resilient design will provides sustainability in ecological and society aspects.

**Key words:** sustainability, ecological resilience, flood adaptation, flood management, Social resilience.

## 1. Introduction

In recent years, Chinese cities have encountered urban water security problems due to natural disasters, human disasters and water scarcity. In the meantime, natural disasters can cause a lot of financial losses, if they haven't controlled. Environmental problems have led designers to a sustainable development in recent years.

In this perspective, all aspects of human activities must be consistent with the principles of sustainable development. Sustainable Perspective is a topic that has recently been discussed