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APPLIATION OF “SPONGE CITY” CONCEPT IN MODERN LANDSCAPE DESIGN

With the advancement of urbanization, rapid expansion of city scale, the urban population is increasing rapidly, many urban problems have emerged: flood disasters, droughts, falling groundwater levels, farmland pollution, abnormal climate changes, abnormal water level change, water body is polluted and other eco-environmental problems. Large-scale urban expansion (land development, lake reclamation) have led to the disappearance of wetlands and floodplains. The increase of ground impermeable materials cause decrease in vegetation coverage and increase in surface runoff. Rainwater collection time is shortened (collect to low-lying land such as waterfront areas faster). In the waterfront area, the peak flood is increasing and its' arrival time is accelerated. After the city becomes a heat island, the rain island effect is further generated, which increases the probability of large-scale heavy rain and increases the flood discharge burden of the waterfront. All of this will cause to a greater risk of flooding in the urban environment, prone to devastating disasters. The environment continues to deteriorate, the recovery capability of the urban environment is reduced.

“Sponge city” is a new urban construction model for flood management, strengthening ecological infrastructure and drainage systems. It can alleviate the city's waterlogging, water resources shortage, and urban heat island effect and improve the ecological environment and biodiversity by absorb and capture rain water and utilize it to reduce floods. Rainwater harvested can be repurposed for irrigation and for home use. It is a form of a sustainable drainage system on an urban scale [1].

Using the concept of “sponge city” modern cities can free from disaster of heavy rain and waterlog and improve the city's flood resistance. It also promotes the transformation of traditional urban parks into modern green parks. By constructing a stable and recoverable ecological city environment, it can solve or reduce the risk of natural disasters and make the development of urban sustainable. Use the technology “sponge city” in modern landscape design is a new trend.

LIST OF REFERENCES

1 SPONGE CITY [Electronic resource] (in English). Access mode: https://en.wikipedia.org/wiki/Sponge_city (Access date: 19.01.2021).