

METODOLOGÍA PARA LA REHABILITACIÓN DE REDES DE DRENAJE IMPLEMENTANDO CONTROLES HIDRÁULICOS, CON LA UTILIZACIÓN DE ALGORITMOS EVOLUTIVOS MULTIOBJETIVO Y MACHINE LEARNING.



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Y MEDIO AMBIENTE

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Hundreds of families forced to flee homes as parts of UK left underwater by deluge

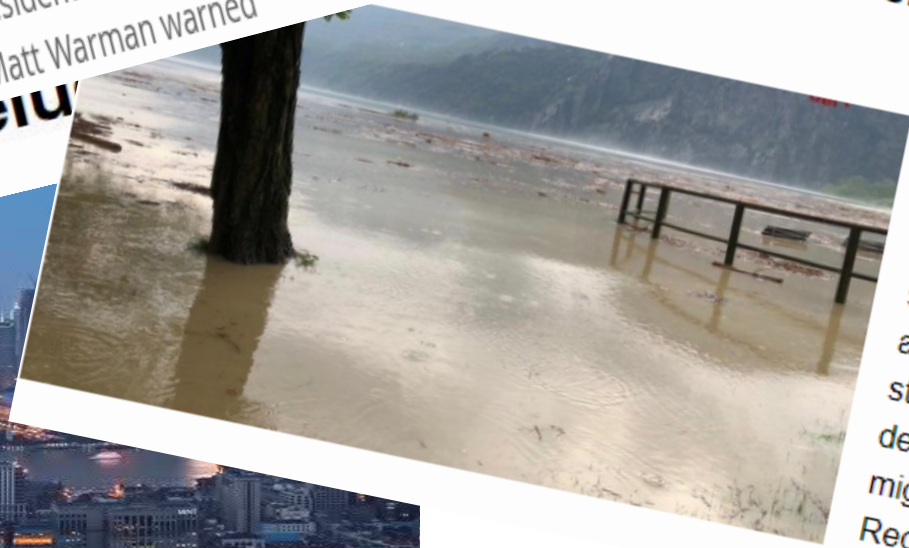
Residents in Wainfleet All Saints and Thorpe Culvert in Lincolnshire are "by no means out of the woods yet," Conservative MP Matt Warman warned

by worst after ne'

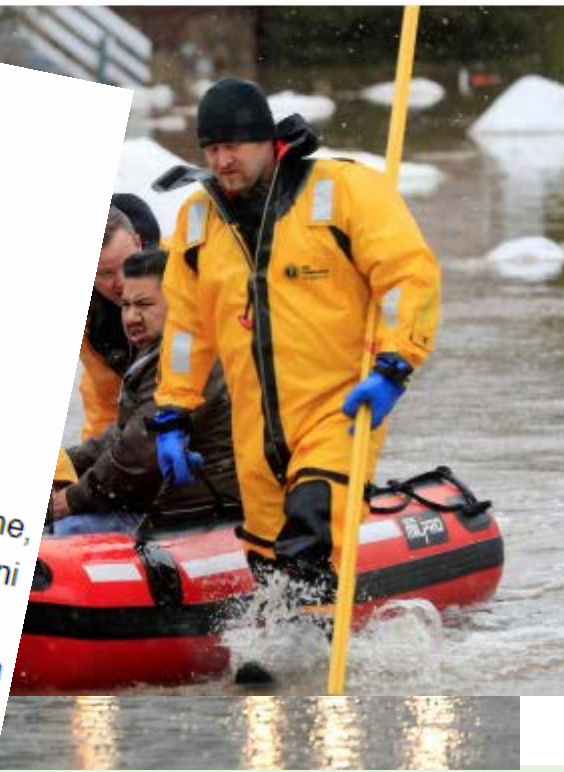
WEATHER

US spring a summer deluge

evacuati



La **Lombardia** si è trovata investita da una ondata di maltempo che ha causato frane, smottamenti, allagamenti, danni alle coltivazioni, chiusure di strade e soprattutto ha portato a decidere l'evacuazione di un migliaio di persone. Tanto che la Regione si sta già preparando a calcolare i danni per chiedere lo



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infrastructures

Article

Multi-Objective Optimization of Urban Drainage or Sewer Networks Rehabilitation Reduced Problem Through Pipes Substitution and Storage Tanks

Javier Martínez-Solís

1044



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ELSEVIER

Optimal location and sizing of storage units in a drainage system

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ABSTRACT

Adapting urban stormwater drainage systems is essential to handling increased urbanization and climate change. Within an urban area, storage units are an efficient solution to reduce peak runoff, but their implementation involves complex decisions. This paper presents a novel optimization model for defining, in existing sewer drainage systems, the number of storage units, their location, size and the components allow an integrated flow control and flooding reduction throughout the network. The desired solution should offer the lowest cost and try to avoid any major flooding impact. The model includes hydraulic, flood and capacity constraints and it is solved through a simulated annealing algorithm that calls upon a dynamic rainfall-runoff simulator for complete evaluation of each solution. The performance of the optimization model is assessed through a case study inspired by a real urban sewer



water

Article

Multi-Objective Sewer Net S...

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Multi-objective rehabilitation of urban drainage systems under uncertainties

Z. Vojinovic, S. Sahlou, A. S. Torres, S. D. Seyoum, F. Anvarifar, H. Matungulu, W. Barreto, D. Savic and Z. Kapelan

ABSTRACT

Urban drainage systems are subject to many drivers which can affect their performance and functioning. Typically, climate change, urbanisation and population growth along with aging of pipes may lead to uncontrollable discharges and surface flooding. So far, many researchers and practitioners concerned with optimal design and rehabilitation of urban drainage systems have applied deterministic approaches which treat input parameters as fixed values. However, due to the variety of uncertainties associated with input parameters, such approaches can easily lead to either over-dimensioning or under-dimensioning of drainage networks. The present paper deals with such issues and describes a methodology that has been developed to accommodate the effects of uncertainties into the design and rehabilitation of drainage systems. The paper presents a methodology that can take into account uncertainties from climate change, urbanisation, population growth and aging of pipes. The methodology is applied and tested on a case study of Dhaka

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Elaborar una metodología que incluya el uso de controles hidráulicos

OBJETIVOS

Presentar los resultados en valor económico.



Disminuir el tiempo de cálculo en la búsqueda de soluciones.



ETAPAS DE DESARROLLO



Estudio del uso de controles hidráulicos



Reducción del espacio de soluciones



Optimización de infraestructura utilizando Algoritmos Evolutivos multiobjetivo y machine learning.

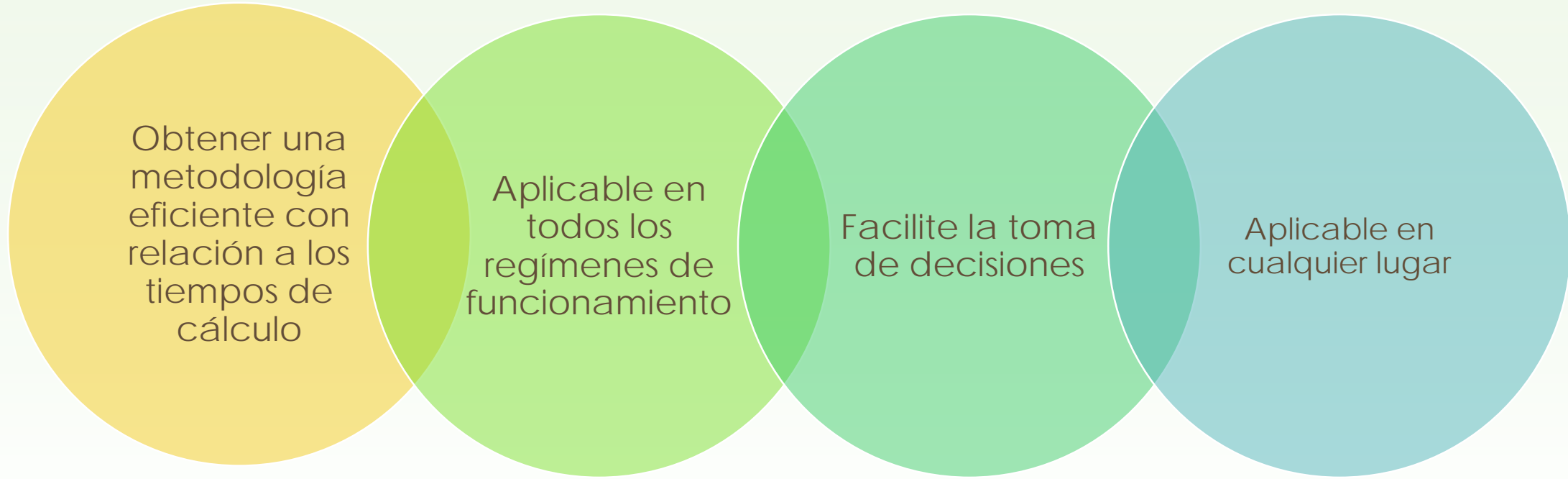


Parametrización de los resultados en términos económicos



Aplicación de la metodología a un caso de estudio

RESULTADOS PREVISTOS



MUCHAS GRACIAS



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