

# **Water Resources and Ecological Carrying Capacity**

Proceedings of 2018 International Conference on  
Environmental and Water Resources Engineering

Jeju Island, South Korea  
12-14 October 2018

**Editors:**

**Hsin Chu**

**Henry Zhang**

ISBN: 978-1-5108-7682-8

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2018) by Aussino Academic Publishing House  
All rights reserved.

Printed by Curran Associates, Inc. (2019)

For permission requests, please contact Aussino Academic Publishing House  
at the address below.

Aussino Academic Publishing House  
14 Union St  
Riverwood, NSW 2210  
Australia

Phone: 61 29 584 8084

aaph\_sydney@hotmail.com

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# Table of Content

<b>Foreword</b> .....	I
<b>Conference Information</b> .....	II-V
Construction of Assessment Index System of River and Lake Connectivity Based on Ecological Carrying Capacity and Ecological Security <i>Yan ZHANG, He CHEN, Shiliang LIU, Baoxiu XING</i> .....	1
<b>EI Classification Code: 445.2 Water Analysis</b>	
Capacity in Jilin Province Based on Fuzzy Set Pair Analysis Model <i>Tong Liu, XiaoHua Yang, Fan Song</i> .....	8
<b>EI Classification Code: 445.2 Water Analysis</b>	
The Effect of Using the Detailed Bottom Boundary Conditions of the Photochemical Modeling on the Urbanized Area <i>Hyun Jeong CHOI</i> .....	16
<b>EI Classification Code: 801.4.1 Electrochemistry</b>	
Surfactants Mediate Transport of Pseudomonas Aeruginosa in Natural Porous Media by Changing Cell Surface Hydrophobicity <i>Hua ZHONG, Zhengdong FANG, Guansheng LIU</i> .....	26
<b>EI Classification Code: 446 Waterworks</b>	
Water Functional Zoning Coordination Research In Tri-Provincial Area of Jiangsu-Zhejiang-Shanghai, Taihu Basin <i>Wang Xiao, Cheng Kaiyu, Wei Jun, Wang Libing</i> .....	35
<b>EI Classification Code: 444 Water Resources</b>	
Evaluation of Urban Residential Water Environment Based on Unascertained Measure-Set Pair Analysis Model <i>Fan SONG, Xiao Hua YANG, Tong LIU</i> .....	40
<b>EI Classification Code: 445.2 Water Analysis</b>	
Efficiency Assessment of a Small-scale Horizontal Subsurface Flow Constructed Wetlands for Rural Domestic Wastewater Treatment <i>Stanislaus Tombe Venusto Lako, Xiwu Lu, John Leju Celestino Ladu, Ittehad Hussain</i> .....	46
<b>EI Classification Code: 453.2 Water Pollution Control</b>	
Study of Separation Method of Materials Containing Polybrominated Diphenyl Ethers (PBDEs) in Recycling Activities: Cased in West Java, Indonesia <i>Annisa Rifathin, Zarlina Zainuddin, Rachmat Wijaya, Retno Wulandari</i> .....	52
<b>EI Classification Code: 815.2 Polymerization</b>	
Experimental Study on Migration Characteristics of Pollutants in Drying Desulfurization Wastewater <i>Yue SHEN, Cai Ling ZHOU, Rong ZHANG, You Chao ZHOU, Shi Fu GE</i> .....	57
<b>EI Classification Code: 453.2 Water Pollution Control</b>	
A Method for Improving Stage Discharge Prediction in Asymmetric Compound Channels <i>Xiaonan TANG</i> .....	63
<b>EI Classification Code: 442.1 Flood Control</b>	
Variation in Reach-scale Bankfull Channel Geometry in the Main Stem of Tarim River Undergoing the Altered Water and Sediment Conditions <i>Quan Li ZONG, Ji Wang YUAN</i> .....	71
<b>EI Classification Code: 446 Waterworks</b>	
A Joint Model of Rainfall Runoff and Reservoir Discharge based on Cellular Automata <i>Zunhua Luo, Guangfa Lin, Rongyan Zhang, Zaidong Wu, Jinyu Ye</i> .....	77
<b>EI Classification Code: 442.1 Flood Control</b>	

Development of Turbine Energy Recovery Technology and Radial Blade Hydraulic Turbine with Guide Vane <i>Chengpeng WANG, Sihan LIU, Daiwang SONG, Lidong JIANG, Shenghui WANG</i> .....	83
<b>EI Classification Code: 441 Dams and Reservoirs, Hydro Development</b>	
Investigation and Analysis of the Spatio-Temporal Dynamics in Surface Water Area Variations in Changzhou Based on RS and GIS <i>Cong Peng, Chunhui Li, Xuan Wang, Yanpeng Cai, Fen Zhao</i> .....	88
<b>EI Classification Code: 444.1 Surface Water</b>	
Exploration of Algae Proliferation Triggers for Tropical Coastal Water by Statistical Modeling <i>Ruixi Zhang, Bjorn Foortse, Mengyu Wang, Seng Keat Ooi, Vladan Babovic</i> .....	95
<b>EI Classification Code: 454.3 Ecology and Ecosystem</b>	
Analysis of Spatial and Temporal Patterns and Main Controlling Factors for Algal Growth in the Pengxi River of the Three Gorges Reservoir, China <i>Dianzi Xu, Hong Peng, Wanshun Zhang</i> .....	103
<b>EI Classification Code: 441.2 Ground Water</b>	
Process Modeling, Simulation and Optimisation of Different Configurations of Multi-Effect Distillation Plant <i>Sameed Quais</i> .....	111
<b>EI Classification Code: 821 Agricultural Equipment and Methods</b>	
Encroachment on Green Open Space, Its Health with Socio-Economic Implications in Akure, Nigeria <i>Dr. Michael Oloyede Alabi</i> .....	120
<b>EI Classification Code: 403 Urban and Regional Planning and Development</b>	
Development Status of Green Building in China <i>Wei Wang, Feng Xu, Pin Lu, Jin Zhou, Wanxin Wu</i> .....	129
<b>EI Classification Code: 402 Buildings and Towers</b>	
Adaptive Thermal Comfort Model of Staff and Audience in Naturally Ventilated Mixed-Use Stadium of Guangzhou, China in Summer <i>Jin Li, Pin Lu, Hailin Zheng</i> .....	140
<b>EI Classification Code: 643.5 Ventilation</b>	
Research on Auxiliary Frequency Control Strategy for Dynamic Compensation of Controllable Capacity of Electric Vehicles <i>Junqi Zhang, Fan Yao, Yi Zhu, Chunyan Jia, Qin Su</i> .....	156
<b>EI Classification Code: 660 Automotive Engineering</b>	
<b>Author Index</b> .....	VI
<b>About Publisher</b> .....	VII