

Water Security and the Food-Water-Energy Nexus: Drivers, Responses and Feedbacks at Local to Global Scales

ICCE Scientific Assembly 2017

Proceedings of the International Association of Hydrological
Sciences (IAHS) Volume 376, 2018

Port Elizabeth, South Africa
10-14 July 2017

Editors:

**G. Jewitt
B. Croke**

ISBN: 978-1-5108-5819-0

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.

The copyright of any article is retained by the author(s) and distributed under the Creative Commons Attribution 3.0 license. <http://creativecommons.org/licenses/by/3.0/>
Unless otherwise stated, associated published material is distributed under the same license. The original work can be found online at:

<http://www.proc-iahs.net/376/index.html>

Printed by Curran Associates, Inc. (2018)

International Association of Hydrological Sciences
Centre for Ecology and Hydrology
Wallingford, Oxfordshire OX10 8BB
United Kingdom

Phone: 441 491 692 442

Fax: 441 491 692 448

<http://iahs.info/>

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
Web: www.proceedings.com

TABLE OF CONTENTS

EDITORIAL: SPECIAL ISSUE ON WATER SECURITY AND THE FOOD-WATER-ENERGY NEXUS: DRIVERS, RESPONSES AND FEEDBACKS AT LOCAL TO GLOBAL SCALES	1
<i>B. Croke, G. Jewitt</i>	
MODELLING THE WATER ENERGY NEXUS: SHOULD VARIABILITY IN WATER SUPPLY IMPACT ON DECISION MAKING FOR FUTURE ENERGY SUPPLY OPTIONS?	3
<i>J. Cullis, N. Walker, F. Ahjum, D. Rodriguez</i>	
THE WATER-FOOD-ENERGY NEXUS IN PAKISTAN: A BIOPHYSICAL AND SOCIO-ECONOMIC CHALLENGE	9
<i>N. Grigg, T. Darbas, M. Kirby, M. Colloff, M. Ahmad, G. Podger</i>	
SUPPORTING BETTER DECISIONS ACROSS THE NEXUS OF WATER, ENERGY AND FOOD THROUGH EARTH OBSERVATION DATA: CASE OF THE ZAMBEZI BASIN	15
<i>F. Gomo, C. Macleod, J. Rowan, J. Yeluripati, K. Topp</i>	
WATER IMPACTS AND WATER-CLIMATE GOAL CONFLICTS OF LOCAL ENERGY CHOICES - NOTES FROM A SWEDISH PERSPECTIVE	25
<i>R. Engstrom, M. Howells, G. Destount</i>	
WATER, ENERGY AND AGRICULTURAL LANDUSE TRENDS AT SHIRORO HYDROPOWER STATION AND ENVIRONS	35
<i>O. Adegun, O. Ajayi, G. Badru, S. Odunuga</i>	
AN INTEGRATED APPROACH TO IMPROVING RURAL LIVELIHOODS: EXAMPLES FROM INDIA AND BANGLADESH	45
<i>B. Croke, W. Merritt, P. Cornish, G. Syme, C. Roth</i>	
FORECASTING DOMESTIC WATER DEMAND IN THE HAIHE RIVER BASIN UNDER CHANGING ENVIRONMENT	51
<i>X.-J. Wang, J.-Y. Zhang, S. Shahid, Y.-X. Xie, X. Zhang</i>	
A HALF-BAKED SOLUTION: DRIVERS OF WATER CRISES IN MEXICO	57
<i>J. Madrigal, P. van der Zaag, N. van Cauwenbergh</i>	
CONCEPTUAL FRAMEWORK TO ENSURE WATER SECURITY IN UKRAINE	63
<i>Y. Gadzalo, M. Romashchenko, M. Yatsluk</i>	
PERFORMANCE ASSESSMENT OF THE GASH DELTA SPATE IRRIGATION SYSTEM, SUDAN	69
<i>A. Ghebreamlak, H. Tanakamaru, A. Tada, B. Adam, K. Elamin</i>	
MODELLING THE IMPACT OF MULCHING THE SOIL WITH PLANT REMAINS ON WATER REGIME FORMATION, CROP YIELD AND ENERGY COSTS IN AGRICULTURAL ECOSYSTEMS	77
<i>Y. Gusev, L. Dzhogan, O. Nasonova</i>	
SOCIO-HYDROLOGICAL APPROACH TO THE EVALUATION OF GLOBAL FERTILIZER SUBSTITUTION BY SUSTAINABLE STRUITE PRECIPITANTS FROM WASTEWATER	83
<i>D.-J. Kok, S. Pande, A. Ortigara, H. Savenije, S. Uhlenbrook</i>	
LAND SUSCEPTIBILITY TO SOIL EROSION IN ORASHI CATCHMENT, NNEWI SOUTH, ANAMBRA STATE, NIGERIA	87
<i>S. Odunuga, A. Ajijola, N. Igwetu, O. Adegun</i>	
POTENTIAL IMPACT OF CLIMATE CHANGE TO THE FUTURE STREAMFLOW OF YELLOW RIVER BASIN BASED ON CMIP5 DATA	97
<i>X. Yang, W. Zheng, L. Ren, M. Zhang, Y. Wang, Y. Liu, F. Yuan, S. Jiang</i>	
Author Index	