

# Accepted Manuscript

Emergy-based sustainability evaluation of Erhai Lake Basin in China

Shaozhuo Zhong, Yong Geng, Hainan Kong, Bin Liu, Xu Tian, Wei Chen, Yiyang Qian, Sergio Ulgiati



PII: S0959-6526(18)30025-8

DOI: [10.1016/j.jclepro.2018.01.019](https://doi.org/10.1016/j.jclepro.2018.01.019)

Reference: JCLP 11699

To appear in: *Journal of Cleaner Production*

Received Date: 15 October 2017

Revised Date: 7 December 2017

Accepted Date: 4 January 2018

Please cite this article as: Zhong S, Geng Y, Kong H, Liu B, Tian X, Chen W, Qian Y, Ulgiati S, Emergy-based sustainability evaluation of Erhai Lake Basin in China, *Journal of Cleaner Production* (2018), doi: 10.1016/j.jclepro.2018.01.019.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# 1 **Emergy-based sustainability evaluation of Erhai Lake Basin in China**

2 Shaozhuo Zhong <sup>a,c</sup>, Yong Geng <sup>a,b</sup>, Hainan Kong <sup>a</sup>, Bin Liu <sup>e</sup>, Xu Tian <sup>a</sup>, Wei Chen <sup>a</sup>,  
3 Yiyang Qian <sup>a</sup>, Sergio Ulgiati <sup>d,f</sup>

4 <sup>a</sup> School of Environmental Science and Engineering, Shanghai Jiao Tong University,  
5 Shanghai 200240, China

6 <sup>b</sup> China Institute for Urban Governance, Shanghai Jiao Tong University, Shanghai  
7 200240, China

8 <sup>c</sup> Yunnan Key Laboratory of Pollution Process and Management of Plateau  
9 Lake-Watershed, Yunnan Institute of Environmental Science, Kunming 650034,  
10 China

11 <sup>d</sup> Department of Science and Technology, Parthenope University of Naples, Centro  
12 Direzionale-Isola C4, 80143 Napoli, Italy

13 <sup>e</sup> The Environmental Protection Bureau of Dali Bai Autonomous Prefecture, Dali  
14 671000, China

15 <sup>f</sup> School of Environment, Beijing Normal University, Beijing 100875, China

## 16 **Abstract**

17 Rapid economic development has significantly degraded the environmental quality of  
18 Erhai Lake and its basin. In order to assess the present sustainability of Erhai Lake  
19 Basin and suggest improvement options, this study builds an emergy-based  
20 framework, in which the whole basin system comprises five sub-systems divided  
21 according to local economic structure and lake functions, including Erhai Lake  
22 sub-system, Fishery sub-system, Agricultural sub-system, Industrial sub-system and  
23 Household sub-system. Moreover, emergy performances of lake water consumption  
24 are analyzed considering the vital role of lake water in the basin development. The  
25 results of emergy-based indicators, e.g. EYR (1.31), ELR (60.98), ESI (2.15E-02) and  
26 support area  $SA_{(r)}$  (1.56E+05 km<sup>2</sup>, about 60 times the actually available area), reveal

Download English Version:

<https://daneshyari.com/en/article/8098334>

Download Persian Version:

<https://daneshyari.com/article/8098334>

[Daneshyari.com](https://daneshyari.com)