

Editorial

Review of Special Issues in the First Half of 2016

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Environments was launched two years ago, in March 2014. As a young international and cross-disciplinary journal, the editorial team has been strenuously working together to achieve the goals of the journal. During the last two years, the journal has recruited editorial board members who are both well-known scholars in environmental sciences or related fields and have published quality papers as well as numerous special issues. Six ongoing special issues have been published in the first half of 2016, and will continue to be published for the remainder of this year, including Land Use Change in the Changing Environment, Climate Change and Environmental Risk, Uncertainty in PVA (Population Viability Analysis) Assessments, Data-Modelling Applications in Water System Management, Mountains in the Changing World, and Consideration of Ecosystem Services and Function for Sustainable Water Use. The issues are extremely important in dealing with complicated, cross-disciplinary environmental problems, as they provide scientific insights, solutions, techniques and policies for these problems. This editorial summarizes and reviews the six special issues for international readers, and provides some insights from the special issues.

Environments consist of human and natural systems which are affected by natural processes and anthropogenic activities from global to local on a worldwide scale [1–6] (Figure 1). Accordingly, integrated studies, including human and natural systems, are essential in dealing with environmental problems from both social and natural perspectives [3]. Therefore, environmental problems should be treated as cross-disciplinary problems and should be solved via insights garnered from various fields such as land use change, climate change, environmental risk, environmental modeling, ecological conservation, water resources management, and environmental changes [5].

In the first half of this year, *Environments* has published the six special issues based on the perspective as presented in Figure 1.

The first special issue is titled Land Use Change in the Changing Environment. Land use changes and management influence the states, properties, and functions of ecosystems, which further affect the provision of ecosystem services, as well as the human well-being [2]. Moreover, land-use changes and management along with political and socio-economic factors all directly or indirectly affect climate change [6]. Accordingly, the associations and interactions between humans and environments are widely studied [4,7–10]. Such research is indispensable since the associations and interactions are complicated and require interdisciplinary work. This special issue attempts to publish quality papers about various land-use and land-cover change issues in relation to environmental changes as well as papers which address the state-of-the-art concepts and tools for an effective analysis at different scales [7]. The subjects of this special issue can be accessed through the special issue website [7].

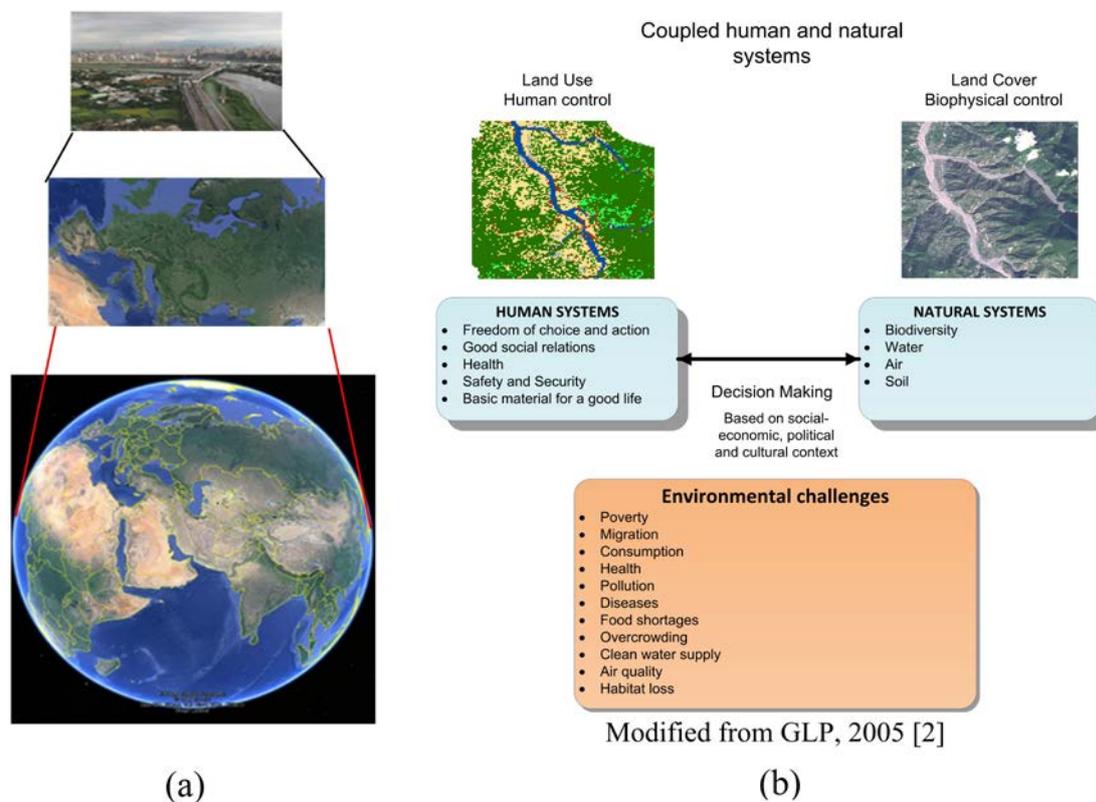


Figure 1. (a) Environments consist of human and natural systems across global and local scales (the first and second pictures from Google Earth); (b) Coupled systems (modified from Global Land Project (GLP), 2005 [2]).

The second special issue is on Climate Change and Environmental Risk: Environmental Economics, Political Ecology and Socio-Environmental Management 2016 [11]. Greenhouse gases emissions from anthropogenic activities, such as carbon dioxide (CO_2) emitted from fossil fuel combustion, cause climate warming [12]. Other, non- CO_2 greenhouse gases, such as methane, nitrous oxide, and ozone-depleting substances, also contribute significantly to the warming [12]. However, compared to CO_2 , some non- CO_2 greenhouse gases are less stable and have much shorter lifespans; therefore, the benefits of reducing their emissions will be enjoyed almost immediately [12]. In other words, decreasing the emissions of non- CO_2 greenhouse gas would be a comparatively fast way of reducing global warming [12]. Accordingly, countries need to find ways to develop their economies while also reducing their emissions, thereby mitigating climate change, and adapting to global climate change [11]. This special issue attempts to publish articles about various environmental risk factors in relation to climate shifts using technical assessment as well as incorporating environmental economics, political ecology, and socio-economic assessments [11]. The key subjects of the special issue can be found at the website of this special issue [11].

The Special issue of Uncertainty in PVA (Population Viability Analysis) Assessments [13] attempts to publish articles which address uncertainty in ecology. The ecological literature traditionally deals with uncertainty by aiming to reduce it to acceptable levels [13]. For instance, statistical models, the Species distribution models (SDMs), take advantage of environmental information (data) to clarify observed patterns of species distributions [14], and to deal with problems in the areas of conservation biology, ecology, and evolution [15,16]; however, various sources of uncertainty influence the SDMs. Population Viability Analyses (PVAs) are widely used in conservation biology to identify risks of extinction for threatened species [17], and apply various models such as simple mathematical or statistical formulations, complex parameter-rich models, or individual-based models [13] (Figure 2).

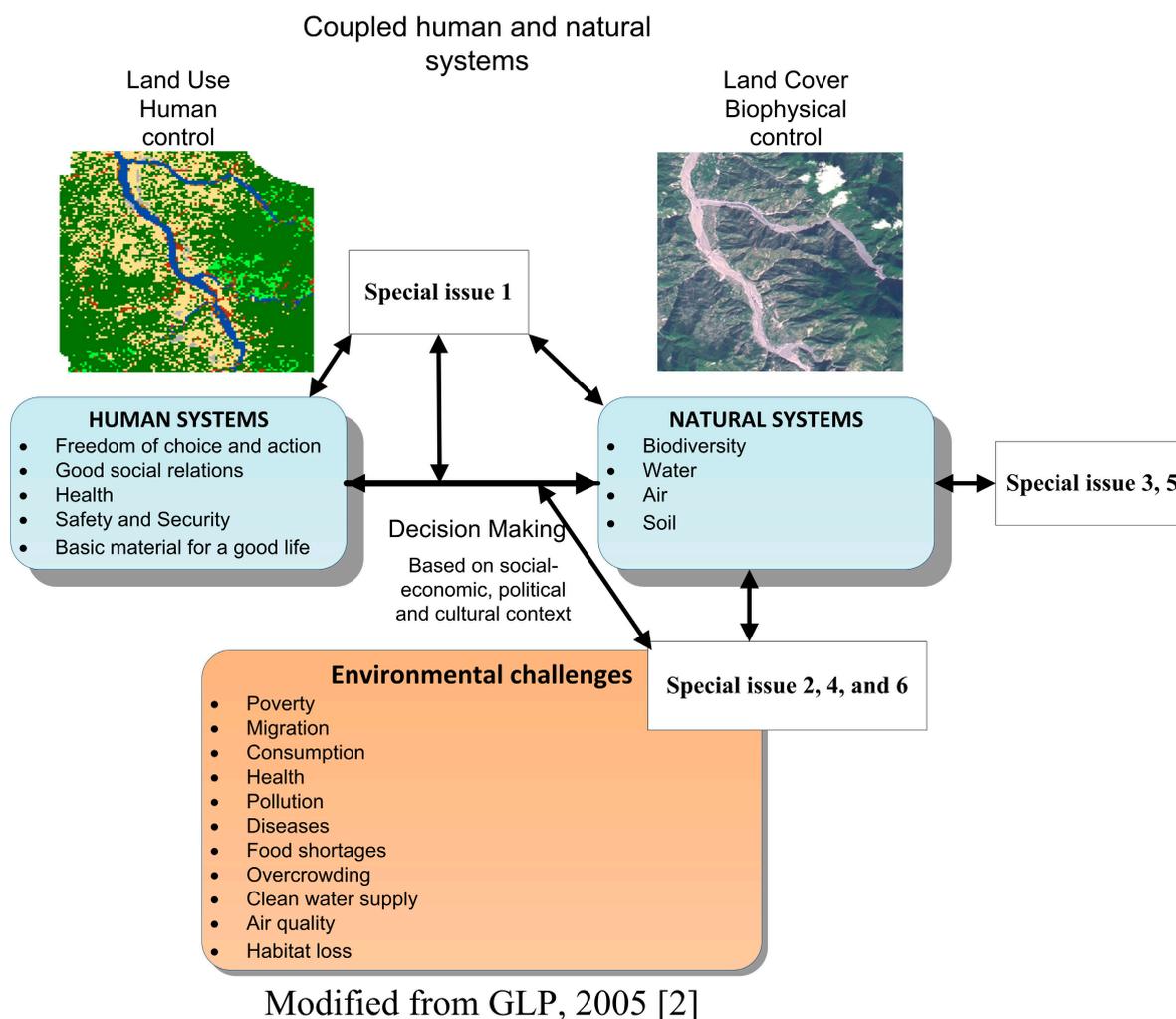


Figure 2. Conceptual framework of six special issues and associated environments.

Data-Modelling Applications in Water System Management [18] is the journal’s fourth special issue in 2016. Both natural environments and humanity are directly impact by the water system management; therefore, there are a large number of fields which deal with it, everything from watershed and groundwater management to natural and human water systems for water supply and wastewater treatment [18]. Data-Modeling approaches, such as machine learning techniques including artificial neural networks (ANNs), and support vector machines (VSM) has been widely applied in dealing with nonlinear interactions and complex domains [19]. For instance, ANNs have been widely used in various water system managements such as groundwater management and stream flow prediction [20]. Such data-driven modeling is widely used in order to uncover new relationships among the observed variables, particularly when physically-based approaches cannot be successfully explored [18]. This special issue aims to publish quality papers in water system management through the use of various data-modeling approaches for system analysis. It is hoped that the publication of such approaches can assist in decision support, and can promote the interdisciplinary exchange of experiences in data-driven modeling for water system management [19]. The key topics of this special issue can be found on the website.

The special issue Mountains in the Changing World aims to discuss changes of mountains and their impact on source of ecosystem services, as well as the storage of biodiversity [21]. In recent decades, mountain environments have been experiencing unusual changes due to climate change, land use change, migration, and developmental activities [21]. Moreover, most ecosystems in mountain

areas are impacted by both natural and anthropogenic processes [22–24]. The natural processes and external environmental drivers, therefore, highly interfere the Land-use and associated ecosystem goods and services EGS [23–25]. This special issue of *Environments* will select papers which have been presented at an international “Mountains in the Changing World” conference in 2016, as well as other submitted papers related to the key topics of mountain environments as listed on the website of the special issue.

The special issue of Consideration of Ecosystem Services and Function for Sustainable Water Use aims to publish quality papers in sustainable water use by considering ecosystem services and functions [26]. In 2005, the Millennium Ecosystem Assessment (MA) defined the Ecosystem services (ESs) [26], which are all ecosystem derived human benefits [4,26,27]. Accordingly, it is essential to maintain the quality of ecosystem services in sustainable water use. One initiative pertaining to this end is the Integrated Water Resources Management (IWRM) approach, which was proposed by the Department of Economic and Social Affairs of the United Nations (UNDESA) in 2007 to support the coordination and development of water, and find balanced solutions [27–29]. The approach attempts to achieve the maximization of economic and social benefits as well as consider the long term integrity of ESs [27–29]. The United Nations Environment Programme (UNEP-DHI) and International Institute of Sustainable Development (IISD) published a report to promote the applications of both ES and IWRM concepts [26–29]. This special issue will select papers which have been presented at 12th International Conference on Hydrosience and Engineering, as well as other submitted papers related to the key topics of water use as listed on the website of the special issue.

The above special issues aim to publish quality papers which provide insights and novelties in all fields pertaining to environmental studies. *Environments* is a quality journal in the publication of studies or disciplinary research in relation to environmental problems. Submissions such as special issue papers or regular papers are welcome in subject areas that are relevant to the aims and scope of the journal and the special issues. Additionally, the editorial team is committed to working towards making this publication a leading international journal in environment-related studies. Therefore, all submissions will be evaluated through a rigorous peer review and an effective editorial process. Once the submitted journal is validated, it then will be published online for wider international and public access. Our editorial board is now calling for journal papers on these special issues and sincerely invites you to participate to accelerate the knowledge exchange of novelties and insights in the environment-relevant fields.

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