Sustaining life on earth system through clean air, pure water, and fertile soil

Muhammad Aqeel Ashraf¹ · Marlia Mohd Hanafiah²

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Introduction

Sustaining life on earth is one of the biggest problems we are facing right now that is linked to three sustainability pillars: environment, social, economic. Living in harmony with nature requires an understanding of the concept of a sustainable community and accessibility to clean air, pure water, and fertile soil. Despite our technological and scientific advances, we are dependent on this life support system (Tukker et al. 2014). Clean air refers to the degree to which air is clean enough for living organisms to remain healthy. Good water quality describes the conditions of water including biological, chemical, and physical characteristics that are suitable for use for a particular purpose (Ashraf and Sarfraz 2016). Another important element of environment is soil fertility that refers to the ability of a soil to sustain plant growth and provide shelter to organisms. Changes to these environmental elements will disturb the balance of our ecosystem (Fig. 1). Polluted air, contaminated water supply, and infertile soil pose serious risks to humans and the environment, and as a result of these changes, we are now facing big challenges in achieving the Millennium Development Goals (MDGs). Proactive strategies to prevent and mitigate these problems from getting more severe are required in order to adapt on how to manage and sustain human life on

earth (Rulli et al. 2013). Issues of global warming, water availability, and soil degradation are not only visible in rural areas but also include urban areas as well that affected anthropogenic activities. To overcome this issue, proper and holistic management of the ecosystem needs to be embraced.

The aim of this special issue is to provide and share new scientific insights on impacts of climate change, water pollution, and soil degradation on resources and ecosystem. This Special Issue aims to foster applied research on diverse topics associated with adaptation and mitigation toward clean air, pure water, and fertile soil. Furthermore, it is aimed at providing and recommending relevant policy-making decisions and seeking knowledge for addressing environmental destruction issues toward sustaining life on earth system (Pfister et al. 2011). Climate resilience and adaptation strategies, improvement of existing water management practices, and sustainable land transformation could help improve our environment for present and future use. These efforts can directly furnish to develop or slow down the impacts of environmental degradation and human health damage. Adaptation strategies and measures can be classified (Tölgyessy 1993) into:

1. Planning and applying new investments such as reservoirs, irrigation systems, capacity expansions, levees, water supply, wastewater treatments, and ecosystem restoration.
2. Monitoring and regulation practices of existing systems to accommodate new conditions (ecology, pollution control, climate change, population growth).
3. Maintaining existing systems such as dams, barrages, irrigation systems, canals, pumps, rivers, and wetlands.
4. Making modifications to water users (rainwater harvesting, water conservation, pricing, regulation, legislation, basin planning, funding for ecosystem services,

Responsible editor: Philippe Garrigues

✉ Muhammad Aqeel Ashraf
chemaqeel@gmail.com

¹ Department of Environmental Science & Engineering, School of Environmental Studies, China University of Geosciences, Wuhan, China

² School of Environmental and Natural Resource Sciences, Faculty of Science & Technology, Universiti Kebangsaan Malaysia, Bangi, Selangor, Malaysia

Fig. 1 Essential for life on earth: water, air, and soil

stakeholder participation, consumer education, and awareness).

5. Introducing new green technologies such as desalination, biotechnology, drip irrigation, wastewater reuse, recycling, and solar panels. In this context, the objective of this Special Issue is to publish high-quality manuscripts that highlight and focus on practical and theoretical and understanding on sustainable practices for clean air, pure water, and fertile soil.

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Dr. Muhammad Aqeel Ashraf is a Professor at School of Environmental Studies, China University of Geosciences (CUG). Previously, he worked as Senior Lecturer at Department of Geology, University of Malaya, Malaysia. He got his doctoral degree (PhD) from Department of Chemistry, University of Malaya, Malaysia, and postdoctoral from Tokyo Institute of Technology, Japan. His current research interests are Environment & Ecosystem. He has published

more than 200 research articles in the fields related to environment, chemistry, ecology, geology, and life sciences.

Marlia Mohd Hanafiah is a Senior Lecturer at the Faculty of Science and Technology, Universiti Kebangsaan Malaysia (UKM). She received her PhD degree in Life Cycle Assessment (LCA) from Radboud University Nijmegen, the Netherlands, in 2013. She has served as a Guest Editor of several international journals and an Editor-in-Chief of *Environment and Ecosystem Science* (EES). She has supervised/co-supervised 40 master's and 15 bachelor's theses and

currently she supervises 22 PhD's and 10 master's theses in the areas of LCA, wastewater treatment, green technology, and sustainability. She is the coordinator of several postgraduate courses at her department. Her research projects focus on modeling potential environmental impacts from pollutant emissions in an LCA context and exploring potential bio-based materials for treating wastewater toward sustainable water management practice. Dr. Marlia has published over 40 peer-reviewed papers, books, book chapters, and technical reports and serves as peer reviewer for several high-impact journals. As a project leader, she has received several international and national grants from various funding agencies with a total amount of more than RM 1.5 million. Since 2013, she has been involved in consulting and reviewing Criteria Document and Standard for companies, organizations, and governments. She is currently conducting transdisciplinary research with a strong interest that integrates green technology and education to tackle fundamental community challenges, especially those related to sustainability.