



## Editorial

Cities and regions in developing countries are facing serious challenges regarding transport, environmental pollution, housing, climate, energy and social inequalities. These challenges jeopardise economic development and the social quality of life of people living in developing countries. In recent years, researchers have paid attention to climate and environment as these conditions often threaten the social and economic development of cities. Scholars and planning professionals are under pressure to rethink the planning approaches that are being used and to develop new robust methodological approaches or experiments for addressing these challenges in practice. In this backdrop, it is more than warranted for planning to critically evaluate environmental conditions and conceptualise the ways to address them from a holistic discourse. The present *Bhumi- The Planning Journal* issue stands proudly in this direction of willful intellectual ambition to produce knowledge and focus on specific themes on the above issues. It contains four papers from authors within and outside of Sri Lanka. All of them undertake applied thinking, putting concepts and theories through their analytical tools in relation to specific case studies, issues and sites.

H. Mallawaarachchi, D.R.M.G.M. Bandara, U. Rathnayake and B.A.K.S. Perera (Mallawaarachchi, Bandara, Rathnayake, & Perera, 2018) look at water sustainability as a high priority area in the face of threats posed to freshwater resources. The concept of the water footprint is still new in the context of developing countries and most of the industries do not have a streamlined procedure in place to follow when carrying out water footprint assessments. In this study, the current practices related to water footprint assessments are therefore evaluated with special emphasis on the apparel manufacturing industry, with a view to identifying the key enablers of and barriers to water footprint assessment and the approaches suitable to overcome the barriers so identified. Case study approach is used in this research because of the requirement for an in-depth investigation. Three apparel manufacturing facilities in Sri Lanka are studied by conducting semi-structured interviews with industry practitioners who had been involved in water footprint assessment procedure in each institution. This study introduces a framework to assist the proper implementation of water footprint assessment in the apparel manufacturing industry in Sri Lanka.

Whereas Mallawaarachchi and others investigate the water footprint assessment to manage freshwater resources, the next paper explores the aspects of inland water transport in Nigeria. Owoputi Adetose Emmanuel, Paul I. Ifabiyi and Akpudo U. Chijioke (Emmanuel, Ifabiyi, & Chijioke, 2018) examine the opportunities and challenges of waterways transportation in the coastal area of Southwestern Nigeria. The results of the analysis show that four major problems impacted on inland waterways development. These are financial constraints, congestion at the jetties, insufficient jetty facility, and political influence. The paper concludes that inland waterways have a high potential for transportation, but it is largely underutilized. The study recommends stronger policies and the need to encourage private-public participation in waterway transport development in the southwest coastal area of Nigeria.

Thinking about the environmental sustainable planning, groundwater pollution is a critical global problem because most dry and arid regions in the world are highly dependent on groundwater. The most frequently found pollutant in groundwater is nitrogen, which causes many health problems. Higher concentration of Nitrogen in drinking water could affect the transport of oxygen in the blood, which causes methemoglobinemia for infants, while it also could cause childhood diabetes and stomach cancer. In the next paper, Aruna Bandara and Tomohiro Akiyama (Bandara & Akiyama, 2018) investigate the Groundwater Contamination by the Agriculture Fertilizer Inputs and its Spatial Distribution Pattern in the Zhangye Basin, Northwest China. In this study, the water quality measurement results indicate two different spatial distribution patterns of chemical contamination respectively for shallow and deep groundwater. Further, this study discusses the current spatial pattern of nitrogen contamination of the groundwater and its temporal change through the comparison with the past studies.

We conclude this issue with an article by B.H. Sudantha, K.M.H.K. Warnakulasooriya, Y.P. Jayasuriya, G.R. Ratnayaka, P.K.S. Mahanama, E.J. Warusavitharana, S.N. Weerasinghe (Sudantha et al., 2018) on the low-cost environmental monitoring system. Whilst widely accepted as an important facet of Open-source technologies and their applications, the scientific evaluation of such technologies and systems is often underexplored in research. This work comprises an integrated approach to setting-up an experimental non-conventional Environment Monitoring System (EMS) based on open hardware, open software, open standards and open data in order to verify its quality, sustainability, applicability, and reliability in terms of data, services and applications. Such a fully accessible, royalty-free and low-cost system could provide developing countries with accessible technology for the so-called 'Internet

of Things' economy, whereby rich insights into the use of such technologies could be drawn from real-time data that are natively collected by this EMS as opposed to manual techniques and methods. In this research, the authors attempt to find out whether a low-cost environmental monitoring system could be used as a viable solution to monitor local phenomena in a sustainable and effective way, meaning the capacity to adapt to meet users' needs.

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