
Editorial: Planning and Design for Sustainability

Parakram Pyakurel¹, David Bernell² and Jeyhun Mikayilov³

¹*Solent University, UK*

²*Oregon State University, US*

³*King Abdullah Petroleum Studies & Research Center, Saudi Arabia*

The special issue on “Planning and design for sustainability” contains two papers that focus on sustainability issues of a middle-income and a low-income nation. The two papers are “Techno-economic assessment of hybrid renewable energy systems for residential complexes of Tabriz, Iran” and “Passenger Transport Modal Mix by Incorporating Travel Behaviour: A Case Study of Kathmandu Valley, Nepal”. These papers highlight the importance of rigorous planning for infrastructural design in developing nations to enhance global sustainability.

The paper “Techno-economic assessment of hybrid renewable energy systems for residential complexes of Tabriz, Iran” by Khalil Aghapouramin explores the feasibility of implementing hybrid renewable energy systems by presenting a case study of a city in Iran. Full renewable energy transition is likely to occur in multiple phases such that each successive phase will have a reduced consumption of fossil fuels. Consequently, assuming 100% renewable energy transition over the next few decades or so, it can be expected that the immediate future will have mass deployment of hybrid technologies as an intermediary stage before full renewable transition is realised. Collaborations among housing developers, academics and other relevant stakeholders are essential to optimise the implementation of hybrid renewable energy systems in commercial buildings. The paper by Aghapouramin can help bridge the gap between theoretical research and implementation of hybrid systems by illustrating a case study of a growing urban infrastructure. In this context, an important further research theme could be investigation of implementation

approaches for future-proof hybrid energy systems that allow retrofitting to fully renewable energy systems with relative ease.

The paper “Passenger Transport Modal Mix by Incorporating Travel Behaviour: A Case Study of Kathmandu Valley, Nepal” by Prajapati et al. explores different public and private transportation options through modelling for developing nations by considering a case study of Kathmandu, Nepal. This study highlights the need for detailed modelling of mobility options by taking travel behaviour into account in developing nations to ensure sustainable transportation. Transportation policies in developing nations need to be guided by long term sustainability planning rather than short term quick fix solutions. More importantly, broader and holistic sustainable infrastructure development planning is required in low-income nations which guides development in all sectors including electrification, transportation, urbanisation and industrialisation. Investigation of approaches to financing mechanisms of sustainable infrastructural projects can also be very valuable in the context of developing nations.