

Sustainable Development

EDITOR

C.A. Brebbia

Wessex Institute, UK

Contents

Volume 1

Section 1: Sustainable assessment and indicators

| | |
|--|----|
| Implementation of new spatial tools for integrated urban development plans in small and medium cities <i>M. Șercăianu, F. Petrescu, O. Luca, F. Gaman & M. Neagu</i> | 3 |
| Cu Lao Cham Biosphere Reserve sustainability project in Vietnam: corporate framework for sustainable development management <i>T. Nguyen, T. Huynh & H. Zhang</i> | 15 |
| Urban sustainability and individual behaviour <i>D. Müller-Eie & L. Bjørnø</i> | 29 |
| An assessment plan for lean and green sustainability practices in the supply chain of hotels <i>R. Al-Aomar & M. Hussein</i> | 41 |
| Sustainability assessment in the built environment of Lake Mariout, Alexandria city, Egypt: factors and a decision framework <i>A. Nayer & M. M. Abouhassan</i> | 51 |
| Regional sustainable development assessment for an air quality index system: a case study of the Macau Special Administration Region <i>Y. Ge, I. Lou, H. Zheng & Z. Wang</i> | 63 |
| Contemporary development and sustainability indicators at the Royal Commission of Yanbu <i>G. Algehni</i> | 73 |

| | |
|---|----|
| Methodology towards defining multi-scalar attributes of sustainability indicators in historical urban areas: assessment tool development <i>A. Nayer & D. Abdel Fattah</i> | 81 |
|---|----|

Section 2: Regional planning

| | |
|--|----|
| Integrated territorial investments: challenges and opportunities – case study of Romania <i>F. Gaman, O. Luca, S. I. Burduja, M. Aldea, C. Iacoboaia, F. Petrescu & M. Șercăianu</i> | 95 |
|--|----|

| | |
|--|-----|
| Peri-urban dynamics and land-use planning for the Greater Cairo Region in Egypt <i>M. Salem</i> | 109 |
|--|-----|

| | |
|---|-----|
| Bicentric conurbation and its territorial development <i>L. Teslíková Hurdálková & D. Kutá</i> | 121 |
|---|-----|

Section 3: Sustainability and the built environment

| | |
|---|-----|
| Green property management for commercial buildings <i>M. N. Razali, N. Kamarudin, A. Z. Zainuddin & S. H. Othman</i> | 133 |
|---|-----|

| | |
|--|-----|
| Policies for promoting green buildings at the local level: a case study of Ningbo, China <i>W. Deng & L. Tang</i> | 145 |
|--|-----|

| | |
|--|-----|
| Forecasting office rentals in Gaborone in the short and long term <i>J. Kampamba & C. E. Cloete</i> | 155 |
|--|-----|

| | |
|--|-----|
| “Taking the pulse” of doctors and nurses to reduce pharmaceutical residues in the water cycle: a ground-breaking survey and its educational implications <i>M. Adomßent</i> | 167 |
|--|-----|

| | |
|---|-----|
| Preliminary study on the estimation of urban embodied emissions using case-based reasoning <i>S. Kang, G. Kang, H. Cho & K. Kang</i> | 179 |
|---|-----|

Section 4: Energy and the environment

| | |
|--|-----|
| Energy-efficient building with the integrated use of renewable energy sources in severe weather conditions <i>V. I. Velkin, V. V. Vlasov & S. E. Shcheklein</i> | 191 |
| Ecosystem based business model of a smart grid <i>M. Lundgaard, Z. Ma & B. N. Jørgensen</i> | 201 |
| PQ analysis of a rooftop solar PV: a grid connected PV system pilot project in Indonesia <i>Hadi Suhana & Ngapuli I. Sinisuka</i> | 213 |
| Enhanced biogas production from landfill leachate by low frequency ultrasound <i>C. Can Yarimtepe & N. Ayman Oz</i> | 225 |
| LNG: an alternative fuel for road freight transport in Europe <i>J. Osorio-Tejada, E. Llera & S. Scarpellini</i> | 235 |
| CO ₂ emissions, energy consumption and GDP: evidence from Iraq <i>J. Lee</i> | 247 |

Section 5: Environmental management

| | |
|--|-----|
| Anthropic pressure and management of the municipal natural area of the “Clot de Galvany” (Elche, Spain) <i>M. Vera González, J. Navarro Pedreño, J. C. Aranda López & I. Gómez Lucas</i> | 261 |
| Examining change in complex social-ecological systems using multiple long-term records: the New Forest – a case study <i>S. J. Pogue, J. A. Dearing, M. E. Edwards & G. M. Poppy</i> | 273 |
| Harnessing latent sustainability: a postcolonial perspective <i>S. Sharma, S. M. Singh & I. Kularatne</i> | 289 |
| Sustainable development of P/M ceramics from steel mill scale and lignite fly ash mixtures <i>S. Lamprakopoulos, V. Karayannis, G. Papapolymerou, S. Zaoutsos, K. Ntampeglitis & X. Spiliotis</i> | 301 |

| | |
|---|-----|
| EMAS: unfulfilled expectations and challenges associated with the planned publication of the new ISO 14001:2015 <i>B. Szyszka & A. Matuszak-Flejszman</i> | 313 |
|---|-----|

| | |
|--|-----|
| Non-powered dust removal device attached underneath a train cabin in a subway tunnel <i>G. N. Bae, J. B. Kim, S. H. Woo, S. J. Yook, H. K. Park & H. H. Yoon</i> | 325 |
|--|-----|

Section 6: Environmental impact

| | |
|--|-----|
| Collaborated development of the Beijing-Tianjin-Hebei region to improve regional environmental quality <i>X. Li & Y. Wei</i> | 335 |
|--|-----|

| | |
|--|-----|
| The impact of Gouin Reservoir management on the ecohydrological drought characteristics of streamflow in the Saint-Maurice River (Quebec, Canada) <i>R. Landry & A. A. Assani</i> | 347 |
|--|-----|

| | |
|--|-----|
| Composition and diversity of the fish assemblages under influence of a gradient river/dam of Taquari River, São Paulo, Brazil <i>J. Queiroz, H. Brandão, S. Britto, A. B. Nobile & R. J. Silva</i> | 357 |
|--|-----|

Section 7: Water resources management

| | |
|--|-----|
| Indicators to evaluate water sensitive urban design in urban planning <i>M. I. Rodríguez, M. M. Cuevas, F. Huertas, G. Martínez & B. Moreno</i> | 371 |
|--|-----|

| | |
|--|-----|
| Defining and measuring river basin sustainability: a case study of the Yellow River <i>H. Wu, R. Darton & A. Borthwick</i> | 383 |
|--|-----|

| | |
|--|-----|
| Informing infrastructure planning processes for IUWM projects <i>C. Furlong, L. Guthrie, S. De Silva & R. Considine</i> | 395 |
|--|-----|

| | |
|---|-----|
| Environmental characterization of a fluvian lagoon ecosystem (Pom-Atasta, Campeche, Mexico) as a critical manatee habitat <i>G. Acevedo-Olvera, A. Delgado-Estrella, M. del R. Barreto-Castro & E. Nuñez-Lara</i> | 407 |
|---|-----|

| | |
|--|-----|
| The conservation of basins and the irrigation districts in Mexico <i>R. Lomeli Villanueva & N. Alvarez Gonzalez</i> | 415 |
|--|-----|

| | |
|--|-----|
| Hydrodynamics modelling utilizing the EFDC Explorer model for the sustainable management of Canal del Dique-Guajaro hydrosystem, Colombia <i>F. Torres-Bejarano, J. Padilla, C. Rodríguez-Cuevas & R. Cantero</i> | 423 |
| Best applicable geostatistical model for interpolating groundwater-levels in El-Obour city, Egypt <i>D. Elleithy, A. Hassan, M. Hagraas & P. Riad</i> | 435 |
| Data-driven modelling for pore water pressure variation responses to rainfall <i>M. R. Mustafa, M. H. Isa, R. B. Rezaur & H. Rahardjo</i> | 447 |
| Water and energy consumption after the modernization of irrigation in Spain <i>C. González-Cebollada</i> | 457 |
| Optimizing irrigation rate in a sandy loam soil using a numerical approach <i>Y. Yu, P. Li, H. Jin & K. Zhang</i> | 467 |
| Understanding farmers' groundwater attitudes for better groundwater management <i>M. E. Varua, J. Ward & B. Maheshwari</i> | 477 |
| Applicability study of permeable pavements in Dubai <i>F. Kfoury, P. Kianmehr & H. El-Hassan</i> | 489 |
| An exploratory analysis of the text mining of news articles about "water and society" <i>S. Hori</i> | 501 |

Section 8: Water pollution studies

| | |
|--|-----|
| Real-time detection of microbial intrusion in potable water using advanced devices <i>A. Abdallah, I. Shahrour, M. Sadek & M. Abdallah</i> | 511 |
| Arsenic detection from water using a silver-modified carbon nanotubes composite electrode <i>A. Baciú, F. Manea, A. Pop & R. Pode</i> | 519 |
| Advanced degradation of pentachlorophenol from water and process control using carbon nanofibers based composite electrodes <i>A. Jakab, F. Manea, A. Pop, R. Pode & N. Vaszilcsin</i> | 531 |

| | |
|---|-----|
| Voltammetric/amperometric detection of salicylic acid in water on carbon nanotubes-epoxy composite electrodes <i>A. Iacob, F. Manea, J. Schoonman & N. Vaszilcsin</i> | 543 |
|---|-----|

Section 9: Architectural heritage

| | |
|---|-----|
| Analysis and seismic retrofit study of a heritage-listed R/C elevated water tower <i>S. Sorace & G. Terenzi & C. Mori</i> | 557 |
|---|-----|

| | |
|---|-----|
| Conservation and vulnerability analysis of architectural heritage on small islands: a case study of Kinmen <i>Y. J. Tseng</i> | 571 |
|---|-----|

| | |
|--|-----|
| Erbil Citadel restoration: some thoughts on earth-built constructions exposed to seismic action <i>J. A. Martin-Caro & I. Paniagua</i> | 583 |
|--|-----|

| | |
|--|-----|
| Structural optimization of timber beams with composite materials <i>D. Bru, F. B. Varona, S. Ivorra & F. J. Baeza</i> | 595 |
|--|-----|

| | |
|--|-----|
| Investigation of the Achaemenid period pottery production technology from the Seyitömer Mound (Kütahya, Turkey) <i>A. İssi, C. Serkaya, V. Uz & A. N. Bilgen</i> | 607 |
|--|-----|

| | |
|--|-----|
| Investigation of the Hellenistic period pottery production technology from the Seyitömer Mound (Kütahya/Turkey) <i>C. Serkaya, A. İssi, V. Uz & A. N. Bilgen</i> | 617 |
|--|-----|

| | |
|--|-----|
| Investigation of the Roman period pottery production technology from the Seyitömer Mound (Kütahya/Turkey) <i>V. Uz, S. Deniz, A. İssi & A. N. Bilgen</i> | 627 |
|--|-----|

| | |
|--|-----|
| Criteria of waxes' performance in the consolidation of steatites (soapstone) in heritage buildings <i>L. P. da Guia & A. L. T. S. da Motta</i> | 637 |
|--|-----|

| | |
|--------------------|---|
| Author index | i |
|--------------------|---|

Volume 2

Section 10: Air pollution studies

- A case study: an environmental and economic analysis of
Turin District's heating system combined with a cogeneration plant
A. Senor, D. Panepinto & G. Genon..... 651
- Influence of the extreme phases of the ENSO phenomenon
(El Niño and La Niña) on air quality in the Metropolitan Area
of the Aburrá Valley (Colombia)
C. E. Zapata, N. A. Cano, M. Ramírez, C. Rubiano & J. Jiménez..... 663
- Evaluation of SO₂ emissions from large scale power plants
using OMI SO₂ retrievals for Turkey
E. Firatli & B. Kaynak-Tezel..... 677
- Preliminary results of the project "Supersito" concerning the
atmospheric aerosol composition in Emilia-Romagna region, Italy:
PM source apportionment and aerosol size distribution
*V. Poluzzi, A. Trentini, F. Scotto, I. Ricciardelli, S. Ferrari,
C. Maccone, D. Bacco, C. Zigola, G. Bonafè, P. Ugolini, G. Bertacci,
M. C. Pietrogrande, M. Visentin, S. Gilardoni, M. Paglione, M. Rinaldi
& M. C. Facchini*..... 689
- Relationship between indoor air chemical exposure and adverse
health effects in a multiple chemical sensitivity suspected patient:
a case report study
H. Nakaoka, H. Seto, E. Todaka, N. Suzuki & C. Mori..... 699
- Exposure to air pollutants in hospitals: indoor-outdoor correlations
A. Chamseddine & M. El-Fadel..... 707
- Biofiltration using natural materials from Portuguese woods
for odour removal in a municipal waste management plant
*R. F. Vieira, D. Lopes, I. R. Baptista, S. A. Figueiredo, V. F. Domingues,
J. Vaz, H. Varela, R. F. Jorge, O. M. Freitas & C. Delerue-Matos*..... 717
- Estimation of NO_x deposition velocities for selected commercial
photocatalytic products
*M. Palacios, L. Núñez, M. Pujadas, J. Fernández-Pampillón,
M. Germán, B. S. Sánchez, J. L. Santiago, A. Martilli, S. Suárez
& B. S. Cabrero*..... 729

| | |
|---|-----|
| Three-dimensional CFD modeling approach to approximate air pollution conditions in high-latitude open-pit mines <i>T. Bhowmick, S. Bandopadhyay & T. Ghosh</i> | 741 |
|---|-----|

Section 11: Cultural heritage

| | |
|--|-----|
| Flood protection in historical towns <i>K. Nedvedova</i> | 757 |
| Use and spatial efficiency of housing facilities and their influence on overall user comfort in blocks of flats in the Czech Republic <i>D. Kutá & J. Česelský</i> | 763 |
| Quantification of mechanical loads induced by traffic and visitors on museum collections placed in a cultural heritage building <i>J. Valach, B. Wolf, S. Urushadze, E. Paulova & P. Stefcova</i> | 773 |
| Social transformations in burial place making: a visibility pattern analysis of three historical cemeteries <i>E. Bazaraitė & T. Heitor</i> | 781 |

Section 12: Sustainable tourism

| | |
|---|-----|
| The relationship between destination image and satisfaction: visits to Macao World Heritage as a moderator <i>C.-H. Leou, X. Wang & C. H. Hsiao</i> | 795 |
| Exploring tourists' attitudes towards Macao: a semantic network analysis of micro-blogs <i>W. Li</i> | 807 |
| Research on the construction of the heritage corridor dynamic tour system: the Grand Canal (Hangzhou section) as an example <i>X. Jin & J. G. Wang</i> | 817 |

Section 13: Urban transport planning and management

| | |
|--|-----|
| City sustainability: a transport perspective – a journey continues <i>K. Doust, C. Wang & T. Doust</i> | 833 |
| Potential contribution of LUTI models in contemporary strategic planning for urban mobility: a case study of the metropolitan area of Thessaloniki <i>G. Pozoukidou, N. Gavanis & E. Verani</i> | 843 |

| | |
|---|-----|
| Urban transport: analysis of commute energy use <i>B. Osório, N. McCullen & I. Walker</i> | 855 |
| Stakeholder perspectives of street works management in England <i>R. S. Hussain, N. T. Brien, D. J. Gartside, M. P. Enoch & K. D. Ruikar</i> | 867 |
| Possibilities of benchmarking application in public passenger transport enterprises <i>J. Gnap & M. Mikusova</i> | 879 |
| A life cycle costing framework for effective maintenance management in a rolling stock environment <i>T. G. Tendayi & C. J. Fourie</i> | 889 |
| Multidimensional parameter space for an individual prediction of the range in the field of pedelecs <i>A. Bedrunka & L.-O. Gusig</i> | 901 |

Section 14: Public transport systems

| | |
|--|-----|
| Under or above ground: differing choice rationales for the light rail systems of Karlsruhe and Hannover <i>D. J. Petkov</i> | 913 |
| Analysis of return-home behaviors and suitable information for public transport users during downpour disasters <i>M. Fujita</i> | 925 |
| Analysis of injuries to young and old Victorian public transport users: 2006 to 2010 <i>B. Fildes, A. Morris & J. Barnes</i> | 935 |
| Light rail transit in Mysore: complimenting land use and transport <i>G. Ghosh</i> | 949 |

Section 15: Safety and resilience

| | |
|---|-----|
| Towards urban sustainability via disaster resilience assessment: a new approach towards constructing seismic resilience metrics <i>A. Asadzadeh & T. Kötter</i> | 963 |
| Creating resilient SMEs: is business continuity management the answer? <i>R. Dahlberg & F. Guay</i> | 975 |

| | |
|---|-----|
| Concept of a community security centre in the multi-hazard environment of a protected area in Bucharest, Romania <i>C. O. Gociman, E. S. Georgescu, T. Florescu, I. G. Craifaleanu,</i> <i>C. I. Moscu & M. S. Georgescu</i> | 985 |
|---|-----|

| | |
|---|-----|
| A review of post-disaster child protection and psychosocial programming in high and middle income countries <i>T. M. Powell</i> | 997 |
|---|-----|

| | |
|--|------|
| The level of driver personality and stress experienced as factors influencing behavior on the road <i>K. Rózanowski, O. Truszczyński, K. Filipczak & M. Madeyski</i> | 1009 |
|--|------|

| | |
|---|------|
| Design of a multisensor system for a highly integrated driver fatigue monitoring technology <i>K. Rózanowski, T. Sondej, M. Czaplicka & M. Madeyski</i> | 1021 |
|---|------|

| | |
|--|------|
| Human-based solutions for open-door train departures <i>F. Jubert</i> | 1035 |
|--|------|

Section 16: Extreme events

| | |
|---|------|
| Evaluation of flood volume and inundation depth by GIS midstream of Chao Phraya River Basin, Thailand <i>T. C. Cham, Y. Mitani, K. Fujii & H. Ikemi</i> | 1049 |
|---|------|

| | |
|---|------|
| Modelling the impact of climate change and variability on water availability and economic likelihood: an example from the Caribbean <i>A. A. Gohar & A. Cashman</i> | 1061 |
|---|------|

Section 17: Disaster management

| | |
|---|------|
| Mapping of occupational hazards at Palma Industrial Park, Constantine, Algeria <i>A. Aib, R. Chaib, I. Verzea & I. Cozminca</i> | 1075 |
|---|------|

| | |
|---|------|
| A risk assessment tool for mobile identity and access management systems during disaster response <i>M. Kost & P. Fomin</i> | 1087 |
|---|------|

| | |
|--|------|
| Issues and challenges in managing enablers for the Fire and Rescue Department Malaysia in search and rescue missions <i>S. S. Maidin, M. Othman, N. H. Arshad, M. N. Ahmad,</i> <i>M. N. Hamzah & M. M. Salim</i> | 1099 |
|--|------|

| | |
|--|------|
| Impact of major incidents on health system performance, security and health protection <i>M. Raich, C. Adler, V. Stühlinger, N. Lorenzoni & S. Duschek</i> | 1111 |
|--|------|

| | |
|--|------|
| A novel framework for analyzing idiosyncratic and covariate shocks in developing countries <i>R. A. Balgah</i> | 1123 |
|--|------|

| | |
|---|------|
| Seismic fragility of weir structures due to sliding effect <i>W. Y. Jung, K. Y. Kim & B. S. Ju</i> | 1135 |
|---|------|

Section 18: Emergency preparedness

| | |
|--|------|
| Incorporating mindfulness mechanisms in designing support systems for multiagency interoperability in emergency management <i>A. Amaye, K. Neville & A. Pope</i> | 1145 |
|--|------|

| | |
|--|------|
| Hybrid structures in disaster management: political and administrative multi-layered approaches <i>B. Parlak & I. Gunduz</i> | 1159 |
|--|------|

| | |
|--|------|
| A stakeholder perspective in managing floods in Malaysia <i>M. Raman, A. O. Ojo & M. Dorasamy</i> | 1171 |
|--|------|

| | |
|--|------|
| An intervention to increase earthquake and fire preparedness <i>G. Perez-Fuentes & H. Joffe</i> | 1183 |
|--|------|

Section 19: Social and political issues

| | |
|---|------|
| 28 years into “Our Common Future”: sustainable development in the post-Brundtland world <i>Y. K. Choy</i> | 1197 |
|---|------|

| | |
|--|------|
| Social vulnerability and political advocacy after Hurricane Katrina <i>T. Buhler Corbin</i> | 1213 |
|--|------|

| | |
|--|------|
| Housing price control: is it a way forward? <i>E. M. Kamal, H. Hassan, A. Osmadi & H. Abdul Fatah</i> | 1225 |
|--|------|

| | |
|---|------|
| Considerations of user comfort in open spaces: lessons learned from the design of public spaces in the Eastern Mediterranean <i>A. Savvides</i> | 1237 |
|---|------|

| | |
|---|------|
| A study on the damage costs for private information leakage using the contingent valuation method <i>S. Y. Lee, J. H. Chung & J. S. Lee</i> | 1249 |
| Inclusive path dependent analysis of sustainable urban environmental governance <i>M. H. Cheng & J. W. Wu</i> | 1259 |
| The effectiveness of European regulation for vehicle noise control <i>R. de Abrantes, A. L. S. Forcetto & R. M. Araújo</i> | 1269 |
| Author index | i |