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Sustainable Synergies from Buildings to the Urban Scale

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The Elderly Friendly High-Rise Housing: A Comparison Study between Indonesia & Japan ☆

Edward Endrianto Pandelaki, Wijayanti, Septana Bagus Pribadi

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Abstract

This study concerns to the life of the elderly who live in the high-rise housing in urban areas. The aim of this study is to discover a conceptual model of high-rise housing which is capable to accommodate the activities of the elderly by conducting a comparative study between Indonesia and Japan. Qualitative method is used because it has explorative nature. Providing attention toward how to create a safe, comfortable, healthy, economical, self-reliant living environment, and how to encourage creation of social cohesion, are necessary for the life of the elderly who live in high-rise housing in urban areas.

Keywords

the elderly; social cohesion; friendly high-rise housing

Special issue articles Recommended articles Citing articles (0)

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Procedia Environmental Sciences

4th International Conference on Sustainable Future for Human Security, SustaiN 2013

Editorial

The 4th International Conference on a Sustainable Future for Human Security (SUSTAIN 2013) was held at Kyoto University (Japan) on 19-21 October, 2013. The conference was organized by SustaiN Society and the Indonesian Students Associations of Kyoto, with the support of the Organization for the Promotion of International Relations (OPIR) Kyoto University, Research Institute for Sustainable Humanosphere (RISH), Global Center for Education and Research on Human Security Engineering (HSE), Global COE Program for Sustainability / Survivability Science for a Resilient Society Adaptable to Extreme Weather Conditions (GCOE-ARS), and Inter-Graduate School Program for Sustainable Development and Survivable Societies (GSS).

The conference originated from the need to provide an inter-disciplinary forum where the most serious problems affecting a sustainable future for human security could be discussed, in recognition of the fact that many future problems cannot be solved by a "siloed" approach. The emphasis on sustainable futures is in response to the general awareness of the need to solve numerous human-related problems resulting from the rapid growth of modern society. The topic of sustainable futures for human security needs to be discussed in an integrated way, in accordance with the principles of sustainability, considering energy and materials supply, economies and trade, technology, cities, agriculture, social and environmental aspects.

To continue providing adequate technology to cope with the demands of human quality of life requires intensive research and development with multidisciplinary perspectives. Research and development towards achieving future human security should embrace sustainability perspectives, to avoid negatively impacting the environment and necessitating or exacerbating inefficient use of natural reserves, increasing emissions and hazardous wastes and jeopardizing human health and society.

The conference covered a wide range of issues with the aim of highlighting potential issues and paths towards a sustainable future. It attracted a high level of attendance from countries of the global North and South, with a wide geographical coverage. Overall, 160 participants were involved, with 120 presentations over the course of the conference. The quality of papers received was a testament to the reputation that the conference has been building over the past 3 years.

Papers presented at SUSTAIN 2013 were divided into five thematic areas: (1) Energy and Environment (EnE); (2) Sustainable Forestry and Agriculture (FA); (3) Sustainable Built Environment in Tropical Hemisphere Countries (BE); (4) River Basin and Disaster Management (RnD); (5) Social Science and Economics (SE). Under these broad areas, a wide-ranging series of presentations was given, which elaborated on current research across Asia and the world. Being held in Kyoto, a city of great cultural heritage, the participants also took part in a tour of some of the main sights and experiences that link modern and ancient Japan.

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The two programmed days of the conference each commenced with keynote presentations which, like the conference itself, were wide-ranging. In the first session on day one, Dr. Ir. Edi Effendi Tedjakusuma, delivered an address on issues of a sustainable future for human security in the context of Indonesia. Dr. Puppim de Oliveira, Assistant Director and Senior Research Fellow at the United Nations University Institute of Advanced Studies (UNU-IAS), then discussed the future sustainability of cities in Asian nations. In the last keynote, Professor Satoshi Fujii, a Japanese cabinet adviser on Disaster Prevention and Reduction, introduced Japanese policy towards a more resilient country.

More than 230 participants attended the conference from 23 countries in Asia, North America and Europe. Around 161 papers were presented in the two days of conference. Only selected papers will be published in the Procedia Environmental Science and a special issue of the International Journal for Sustainable Futures for Human Security (J-SUSTAIN).

The organizers appreciate the support and assistance of the co-operating organizations, the participants, presenters and staff. The next SUSTAIN conference is highly anticipated by all the attendees of SUSTAIN 2013 and the committee expect to further build on the success of this year's event.

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4th International Conference on Sustainable Future for Human Security, SustaiN 2013

The Influence of Hydrothermal Temperature on CaO-based Adsorbents Synthesized by Sol-Gel-Hydrothermal Method

Nwe Ni Hlaing[a,b,c], Radzali Othman[a], Hirofumi Hinode[b], Winarto Kurniawan[b], Aye Aye Thant[c], Abdul Rahman Mohamed[d], Chris Salim[e], Srimala Sreekantan[a]*

[a]*School of Materials and Mineral Resources Engineering, Engineering Campus, Universiti Sains Malaysia, 14300 Nibong Tebal, Penang, Malaysia*

[b]*Department of International Development Engineering, Tokyo Institute of Technology, 2-12-1 Ookayama, Meguro-ku Tokyo, Japan*

[c] *Department of Physics, University of Yangon, 11041 Kamayut, Yangon, Myanmar*

[d]*Low Carbon Economy (LCE) Research Group, School of Chemical Engineering, Engineering Campus, Universiti Sains Malaysia 14300 Nibong Tebal, Penang, Malaysia,*

[e]*Department of Environmental Engineering, Surya University, Tangerang, 15810 Banten, Indonesia*

Abstract

To capture carbon dioxide (CO_2), a major green house gas from flue gas, several kinds of adsorbents have been synthesized, characterized and tested. In this study, CaO-based adsorbents were synthesized via sol-gel-hydrothermal method and different hydrothermal temperatures (100, 120, 140 and 160°C) have been investigated in order to verify their influence on the CaO-based adsorbents. Experimental results showed that the $Ca(OH)_2$ adsorbent with a mixture of $CaCO_3$ synthesized at 120°C hydrothermal treatment possesses high CO_2 adsorption capacity (0.52 g-CO_2/g-sorbent) and at 160°C hydrothermal treatment, $CaC_2O_4.H_2O$ adsorbent was observed and its CO_2 adsorption capacity was 0.46 g-CO_2/g-sorbent for first carbonation/calcination cycle.

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Keywords: Carbon dioxide; CaO-based adsorbents; sol-gel-hydrothermal method; CO_2 adsorption capacity.

* Corresponding author. Tel.: (+60) 012-522 2674; fax: (+60) 04-599 5255.
E-mail address: srimala@eng.usm.my

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4th International Conference on Sustainable Future for Human Security, SustaiN 2013

Developing a Tool to Analyze Climate Co-benefits of the Urban Energy System

Hooman Farzaneh[a,b,]*, Aki Suwa[a], Christopher N.H. Dolla[a] and Jose Antonio Puppim de Oliveira[a]

[a]*United Nations University, Institute of Advanced Studies, Pacifico, Yokohama, Japan*
[b]*National Institute for Environmental Studies (NIES), Tsukuba, Japan*

Abstract

The world rapidly urbanizing, and a majority of the global population will experience climate change in cities. Climate change will exacerbate the existing urban environmental management challenges in cities, in most cases making existing problems much worse. At the same time, cities are responsible for significant global greenhouse gas emissions, and given current demographic trends, this level will likely only increase over time. These challenges highlight the need for cities to rethink how assets are deployed and infrastructure investments are prioritized as well as how climate will affect long-term growth and development plans. Since responding to the complex challenges of climate change mitigation and adaptation requires a knowledge-based approach, the present research is based on providing a tool for assessing the climate co-benefits of improving performance of the energy system at the city scale. This research aims to assess the expected co-benefits arising from different sub-sectors of the city-wide energy system. It will also address in some detail the role of executive policy targets support to reduce the greenhouse gas (GHG) emission and air pollution in cities. The tool is initially tested using real data for the city of Yokohama, Japan and estimates that the city's envisioned Smart City Project could achieve GHG reduction of about 1.68Mt/yr.

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Keywords: Climate co-benefits, energy system,eEfficiency, smart grid, renewable energy

* Corresponding author. Tel.: +81-90-9697-1354; fax: +81-45-221-2302
E-mail address: farzaneh@ias.unu.edu.

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Feasibility Study on Reuse of Washed Water in Electronic Industry: case study for flexible printed circuit board manufacturing in Thailand

Tippabust Eksangsri[a,*] and Thanon Jaiwang[b]

[a]*Department of Chemical Engineering, Faculty of Engineering, Thammasat University (Rangsit campus) 10210, Thailand*
[b]*Programme of Energy and Environmental Technology Management, Faculty of Engineering, Thammasat University (Rangsit campus) 10210, Thailand*

Abstract

Water reuse for final cleaning process in electronic industry is evaluated. The target factory produces flexible printed circuit boards, which are washed with purified deep-well water as a final process before packaging. Survey of water consumption and its quality was conducted. Feasibility study aims to find the suitable schemes the factory can apply to the real practice when the water consumption rate for final cleaning process increases, with a few conditions that need to be concerned. Material flux analysis and economical evaluation are also performed. It is found that the water needs to be treated before reusing due to the conductivity and LPC that are too high. It is, therefore, suggested that the reused water recharged to both RO unit and ion-exchanger at a suitable ratio. The most attractive alternative in term of both technical and economical aspects is when the recharged ration is 30:70. Raw water consumption can be saved up to 19,760 m^3 per year and the investment can be paid off within 2 years.

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keywords: flexible printed circuit board manufacturing; cleaning process; conductivity; LPC; material flux analysis; economical evaluation

* Corresponding author.
E-mail address: etippabu@engr.tu.ac.th

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The 4th International Conference on Sustainable Future for Human Security, SustaiN 2013

Design and Development of an Integrated Web-based System for Tropical Rainfall Monitoring

Edgar Marko Trono[a]*, Maria Leonora Guico[a], Rollyn Labuguen[a], Andrei Navarro[b], Nathaniel Joseph Libatique[a,c], Gregory Tangonan[c]

[a]*Department of Electronics, Computer and Communications Engineering, Ateneo de Manila University, Quezon City, Philippines*
[b]*Department of Information and Computer Sciences, Ateneo de Manila University, Quezon City, Philippines*
[c]*Ateneo Innovation Center, Ateneo de Manila University, Quezon City, Philippines*

Abstract

This study is about the design and development of an integrated web-based system for tropical rainfall monitoring. The system gathers data using a network of low-cost, Android-based acoustic rainfall sensors, a nationwide infrastructure of 5 GHz wireless broadband links, and remote weather stations. The low-cost Android-based acoustic rainfall sensors are deployed at high densities over a local area and the 5 GHz wireless broadband sensors gather rainfall information on a nationwide scale. The sensor network provides information about spatial-variations that are characteristics of tropical rain rates, and complement data from the scarcely deployed remote weather stations. Gathered data is then processed and displayed on a web interface.

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Keywords: Rainfall monitoring; web technologies; acoustic sensors; wireless broadband links; wireless sensors

1. Introduction

Tropical rainfall is characterized by variations in intensities over sub-kilometer distances. Rainfall intensity variation is an important parameter in engineering high-frequency, high-bandwidth wireless spatial diversity schemes. Monitoring spatial variations in rain rate is also critical in disaster management and alarm systems. For instance, landslides may be triggered if high-intensity rain falls over an already saturated slope [1,2,3].

Previous studies have used wireless communications networks for rainfall monitoring in temperate climates [5,6]. The current study is about an integrated system for real-time tropical rainfall monitoring. The system imports data from a sensor network that uses a high-density deployment of low-cost, Android-based acoustic sensors, a nationwide infrastructure of 5 GHz wireless broadband links, and Davis Vantage Vue™ remote weather stations.

* Corresponding author. Tel.: +8190-9118-3476.
E-mail address: markotrono@alumni.ateneo.edu

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