IOP Conference Series: Earth and Environmental Science • *Open Access* • Volume 623, Issue 1 • 8 January 2021 • Article number 012092 • 2nd International Conference on Environment, Sustainability Issues, and Community Development, INCRID 2020 • Semarang, Virtual • 21 October 2020 • Code 166804

Document type
Conference Paper • *Gold Open Access*

Source type
Conference Proceedings

ISSN
17551307

DOI
10.1088/1755-1315/623/1/012092

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Relationship of quality management system standards to industrial property rights in Indonesia using spearman correlation analysis method

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Abstract

This study examines the relationship between SNI ISO Quality Management System (QMS) Standards to Industrial Property Rights in Indonesia using Spearman Correlation Analysis. The focus of research is on the comparison of the correlation coefficient value of quality management system standards : SNI ISO 9001 QMS, SNI ISO 14001 EMS, SNI ISO 22000 FSMS, SNI ISO 13485 MD-QMS, SNI ISO 27001 ISMS, SNI ISO 16949 A-QMS with industrial property rights : patents, simple patents, industrial designs and brands in Indonesia. The test conducted was to see the data relationship between the number of QMS standard certificates to Indonesia 's industrial property rights for seven years, starting from 2009 to 2015. The Spearman Correlation method analyzes the correlation coefficient value on the development of certificate data held in Indonesia. The Spearman correlation test results show that several QMS standards have significant values that have entered the tolerance limit or have gone out of the tolerance limit for industrial property

Source details

IOP Conference Series: Earth and Environmental Science

Scopus coverage years: from 2010 to Present

ISSN: 1755-1307 E-ISSN: 1755-1315

Subject area: Earth and Planetary Sciences: General Earth and Planetary Sciences

Environmental Science: General Environmental Science

Source type: Conference Proceeding

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Preface

The International Conference on Environment, Sustainability Issues, and Community Development (INCRID) 2021 is the third annual international conference hosted by the Department of Environmental Engineering, Diponegoro University. With the theme of "Research and Innovation in Environment Towards Sustainability in Disruptive and Post-global Pandemic Situation", this forum will promote all factors that related to environmental technology, science, education and innovation to achieve the desired sustainable development goals during this disruptive and pandemic situation. The INCRID 2021 was successfully held on 9th September 2021 in an online system where the 3rd floor of GKU, Faculty of Engineering, Universitas Diponegoro was used as conference host venue. The INCRID 2021 committees are concerned and take precautions regarding the transmission of COVID-19 (coronavirus). To maintain the health, safety, and security of the participants, the committee hold this conference through oral presentations remotely in live-streaming meetings using Zoom Application and youtube as the virtual platform (Please see this link for seeing how the virtual conference is going: https://www.youtube.com/watch?v=VVBfCbLzVsA). This meeting is important because the dissemination of research findings especially in the environmental science topics should be done annually, even in an virtual setting. The conference was attended by 255 participants came from 49 academic universities and institutions across the world which include as follows.

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The invited speakers for plenary sessions are as follows: Prof. Majeti Naramsiha Vara Prasad (University of Hyderabad, India), Prof. Takanobu Inoue (Toyohashi University of Technology, Japan), Prof. Ashanta Goonetileke (Queensland University of Technology, Australia), Prof. Hsin-Hsin Tung (National Taiwan University, Taiwan), Prof. Dr. Ir. Purwanto, DEA (Diponegoro University, Indonesia), and A. Suko Widigdo, S.T., M. Eng. (Director of Operations I PT Adhi Karya (Persero) Tbk). Each of them are given 25 minutes to talk and 10 minutes to discussion. During the presentation, the committee share the link for collecting the questions from the audiences which can be seen from this link: https://app.sli.do/event/lzwhmoea/live/questions.

In the parallel sessions, there are 10 breakout rooms where 10-13 presenters were delivering their speech. The presenters were given 10 minutes of research presentation and 5 minutes of question and answer session. The participants could join the rooms by confirming to the committee which rooms they like. During the online meeting, the forum were still interactive where each of the presenter and audience have a nice discussion and exchange their knowledge. The parallel session also attract many potential research collaboration especially in the environmental science, engineering, education, and health research field. Most of the papers are sent to IOP Conference Series: Earth and Environmental Science for publication. The proceeding includes some topics of environmental science and system. The manuscripts are peer-reviewed by some researchers who are coming from many countries and expert in the environmental research field.

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Accepted papers received: 02 December 2020
Published online: 08 January 2021

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Relationship of quality management system standards to industrial property rights in Indonesia using Spearman Correlation Analysis Method

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Abstract. This study examines the relationship between *SNI* ISO Quality Management System (QMS) Standards to Industrial Property Rights in Indonesia using Spearman Correlation Analysis. The focus of research is on the comparison of the correlation coefficient value of quality management system standards: *SNI* ISO 9001 QMS, *SNI* ISO 14001 EMS, *SNI* ISO 22000 FSMS, *SNI* ISO 13485 MD-QMS, *SNI* ISO 27001 ISMS, *SNI* ISO 16949 A-QMS with industrial property rights: patents, simple patents, industrial designs and brands in Indonesia. The test conducted was to see the data relationship between the number of QMS standard certificates to Indonesia's industrial property rights for seven years, starting from 2009 to 2015. The Spearman Correlation method analyzes the correlation coefficient value on the development of certificate data held in Indonesia. The Spearman correlation test results show that several QMS standards have significant values that have entered the tolerance limit or have gone out of the tolerance limit for industrial property rights. This evidence suggests several quality management system standards able to contribute to the development of innovation in a country, especially Indonesia.

1. Introduction

Industrial property rights (IPR), including brands, patents, industrial designs and copyrights, are used as rights granted by the state to an individual or several people for their work on new products or services resulted [1,2]. Meanwhile, innovativeness is defined as a person's tendency to learn something new. Therefore innovativeness is used as a parameter to measure the ability to develop a new product [3]. Companies that produce a new product tend to develop their technology. However, several companies tend to buy technology from abroad, which indicates a weak level of protection of intellectual property rights [4]. Although the role of intellectual property rights in economic growth in a country is not very clear theoretically and empirically, research conducted by Gould (1996) recommends that the stronger the intellectual property rights, the higher the country's economic growth [5]. On the other hand, Chen's (2005) research reveals a linear relationship between the application of intellectual property rights protection and the development of a country [6].

Several studies have concluded that the most popular quality management system philosophies are based on ISO 9000 and Total Quality Management, but TQM is static, while ISO 9000 certification will always develop. ISO 9000 focuses on the overall Quality Control (QC) system from the product design process to the after-sales or warranty service process. Therefore ISO 9000 as an international standard based on a quality management system has become a major subject in the development of many

Bibliometric analysis of the study on exposure evaluation to aerosol nano or ultrafine particles in the breathing zone

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Abstract. To map the advancement of exposure evaluation research for particles less than 100 nm in the breathing zone, we developed a bibliometric analysis using VosViewer 1.6.15 by collecting relevant publications from Scopus on August 10th, 2020. Of 769 relevant documents, 90.64 % (n = 697) came from the journal and used English as the language that started to be published in 1985. The results showed that research themes have grown on the three clusters related to inhaled nanoparticles exposure measurement, responses and effects, and their primary existence in consumer products. Moreover, depth analyses by visualizing maps of the top active countries, authors, and top-cited documents on the citation, co-citation, or co-occurrence have revealed several essential pieces of information on this research area. Our findings suggest that the greater depth on appropriate devices for exposure measurements, particularly in nano-sized, which matches with the metrics were needed. Through these efforts, the capabilities of analyses can improve for future inhaled nanoparticles exposure assessments.

1. Introduction

Regarding the development of nanotechnology, nanomaterials' use implies that the risks of particle less than 100 nm had spread to large environments, from workplaces as the production site until consumers in many forms of product. Previously, the sources of the general size-segregated particles from the combustion activities have also played as the contributors to the emission of nano or ultrafine particles, such as forest fires, volcanic eruptions, industrial chimneys, the exhaust of vehicles, and kitchens. Therefore, studies on the health effects of nano-sized particles have been extensively developed in the last two decades with nanotoxicological knowledge's critical role to comprehend the responses and make the adverse impacts identified in a more broad aspect [1-3]. Regarding the health and environmental risks, nanotechnology products, as the new contributors of nano-sized particles with combustion activities previously, need to concern for sustainable principles. While, the particulate matter in their size-segregated forms has been known can increasing respiratory morbidity and mortality [4,5].

Compared to the larger particles, nano-sized particles had more deposition rate to cross the pulmonary epithelium and reach the interstitium, which can be systematically distributed into the bloodstream to increase the possibility of increasing the level of inflammation [6,7]. Therefore, future effects of nano-

Cultivation process of microalgae using wastewater for biodiesel production and wastewater treatment: a review

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Abstract. Combining microalgae cultivation with nutrient removal is a promising technique as it enables renewable energy generation with the additional potential removal of wastewater contaminants in a single process. Performance and total yield of this process are still below the standard for industrialization. Thus, optimization is needed to reach the feasibility and actualize the concept. Cultivation conditions and reactor design play essential roles in the application and feasibility of this process. Both aspects have been developed through the years to enable the industrial application of this concept. Cultivation conditions are usually categorized into trophic conditions in which each situation has its specific function and target of removal. These conditions, however, are also applied in various reactor systems. Closed photobioreactor and open pond are two central systems for the reactor. Two of the most applied reactor models in wastewater are reviewed here to create a broad picture of the algae cultivation process by emphasizing biomass production and considering different aspects.

1. Introduction

Microalgae culture is considered as the future generation of biofuel source with many additional advantages. Among the advantages, nutrient removal and carbon sequestration are on top of the priority list; hence, this technology's benefit in overcoming environmental issues is very favorable [1-3]. Lately, more significant scale applications with numerous technologies vary the possibility of applying many wastewater sources and characteristics.

The microalgae cultivation process with a specific bioreactor design shows essential roles in the application and feasibility of coupling biomass generation with a wastewater treatment system [4]. Among factors that determine the coupling feasibility, light penetration and agitation process are commonly mentioned in this system. Both of operational parameters are mostly affected by the design of the reactor in which the generation of algae biomass is conducted [5]. The agitation and light penetration are essential to ensure high biomass productivity and wastewater recovery [4,6]. Similarly, the *trophic* condition must count as the first consideration since algae can cope with many carbon and energy, including the one in the system of wastewater treatments [7].

Nonetheless, many wastewater applications as sources of nutrients for microalgal growth failed to reach high biomass yield. Some of the applications focused on the strains and co-cultivation microorganisms while the operational conditions were less considered. Failure to identify and construct

Recent advances in the stabilization of expansive soils using waste materials: A review

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Abstract. The increasing population necessitates infrastructural development, and these civil engineering infrastructures are constructed on soils. Highways, buildings, bridges, railways, and dams need a strong foundation; however, some soils are not suitable for making a strong foundation. An example is expansive or reactive soils. Expansive soils are subjected to volumetric changes, thus the biggest challenge that geotechnical engineers encounter in the field. In an attempt to make these poor soils more appropriate for use in engineering projects, different stabilization techniques are used. However, well-established stabilizers like cement, lime, and bitumen are associated with environmental challenges. This has attracted the attention of the researchers to look for environmentally friendly and sustainable stabilizers. The current study provides a review of the recent trends in improving the geotechnical properties of expansive soils using waste materials, focusing on their efficacy, the optimum percentage, and research gaps. Wastes considered in this study include waste tires, sawdust, and sawdust ash, and fly ash. The review utilized research articles extracted from different databases, such as Science Direct, Google Scholar, Scopus, Web of Science, and Google. This work could give the geotechnical engineers and independent researchers insight into the recent soil stabilization trends that could lead to sustainable development.

1. Introduction

Various soils are used during the construction of civil engineering structures. However, some soils are suitable, while others are unsuitable for civil engineering purposes [1]. One example of unsuitable soils that cause severe damage to engineering structures' foundations includes expansive clay [2]. These soils experience massive volume changes due to their high affinity to water. Expansive soils have a record of swelling during the wet season and shrinking during the dry season, and the cause of these behaviors could be the presence of a mineral with an enlarging matrix [1], [3], [4]. In most parts of the world, soils with desirable properties are transported from quarries that are at times far from the construction project site. This raises the construction costs of the project in terms of excavation and transportation costs, and for that matter, there is a need for shifting to locally available stabilization materials.

The history of expansive subgrade soil stabilization can be traced way back to the 1950s, and since then, researchers continued looking for better and sustainable ways of soil stabilization [5]. Dubose [6] experimented using a compaction method to control heaving in clay soils. In 1958, Jones conducted laboratory studies on improving the geotechnical properties of reactive clay soils using hydrated lime