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Identification of Musculoskeletal Disorder Complaint, Dermatitis Incident and Respiratory Disorder in Smoked Fish Worker

Setyaningsih Y. , Wahyuni I., Ekawati

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Abstract

Smoked fish is one of the most popular side dishes. Workers in the smoked fish industry do their work with sitting postures in a stool. This posture causes many complaints of musculoskeletal in workers. They are always in contact with water that causing itching and redness. The fogging process of the fish makes the work area full of smoke, so workers complain the shortness of breath. Besides, the work area was always flooded and dirty. The purpose of this study was to describe the hygiene sanitation condition, musculoskeletal complaints, the incidence of dermatitis and respiratory disorder. This research was a quantitative research with cross sectional approach. The study was conducted at a smoked fish center in Bonang, Demak, Central Java. Research subjects as many as 80 people were taken randomly. Data were collected using a questionnaire and analyzed descriptively. The results showed the majority of workers were female by 72.5%, the majority of workers aged 35 years by 66,3% and the majority of workers had a working period of 5 years of 52.5%. Health complaints experienced were 87%

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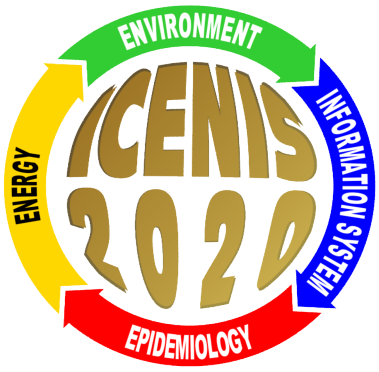

5th International Conference on Energy, Environment, Epidemiology and Information System (5th ICENIS) 2020

Organized by

School of Postgraduate Studies
Universitas Diponegoro

12-13th August 2020

Preface

The 5th International Conference on Energy, Environment, Epidemiology and Information System 2020 (5th ICEN IS 2020) has been organized by the School of Postgradute Studies, Universitas Diponegoro, Indonesia with the support by World Class University (WCU) Program. The conference was held on Auguat 12th-13th 2020 in Semarang, Indonesia by using Online Conference System. The aim of the conference was to distribute research outcomes on multidisciplinary research area on energy, environment, health and epidemiology and information system.

The 5th ICENIS 2020 have presented 10(ten) international honorable keynote speakers from representative institutions and continents: i) Prof. Elco van Burg, Vrij University Amsterdam, The Netherlands; ii) Prof Peter Gell, Federation University, Australia., iii) Prof. Jerry Miller, Western Caroline University, USA; iv) Prof. Shabbir Gheewalla, Joint Graduate School of Energy and Environment (JGSEE), Kingmokut University, Thailand; v) Assoc. Prof. Zainul Zakaria, Chemical Engineering Department, UTM Malaysia; (vi) Dr Yurdi Yasmi; Regional representative of IRRI for Southeast Asia, Cambodia; (vii) Dr Nuki Agya Utama, Executive Director of Asean Energy research; (viii) Patrick van Schijndel, TU Delft, The Netherlands, (ix) Barokah Sri Utami, Former President Director of PT Phapros, Indonesia, and (x) Dr Liew Kian heng from Strategics Singapore. Pursuing the international network of researchers and industrial applications, this event also has been attended by overseas colleagues to share their best research works as well as local academia and practitioners. Over 320 representatives from various institutions participated in this event, involving more than 340 abstracts submitted. After a rigorous selection process, the Scientific & Editorial Board of 5th ICENIS 2020 made selection of 300 articles to be published in E3S Web of Conferences, an open-access proceedings in environment, energy and earth sciences, managed by EDP Sciences, and indexed on Scopus, Scimago, Conference Proceedings Citation Index-Science (CPCI-S) of Clarivate Analytics's Web of Science, DOAJ (Directory of Open Access Journals). The Proceedings of 5th ICENIS 2020 consists of selected articles from Kazakhstan, Libya, Netherlands, Thailand, Malaysia. The published papers have passed all necessary improvement requirements in accordance to the Web of Conferences standard, reviewer's comments, SI, similarity tests by Turnitin program.

We would like to express our gratitude to the official committee, scientific & editorial boards, organizing partners. A very special thanks to Universitas Diponegoro for financially supporting this conference especially for financing indexing of proceeding in E3S. Finally, we would like to briefly acknowledge all presenters and attendees for their efforts sharing the beautiful ideas and useful research outcomes to inspire further research and collaborations. Although, this time the conference has been successfully conducted via webinar, but the number of participants showed a great increases and we do hope that this also will be the same for the coming 6th ICENIS 2021.

See you again in the next year conference 5th ICENIS 2021

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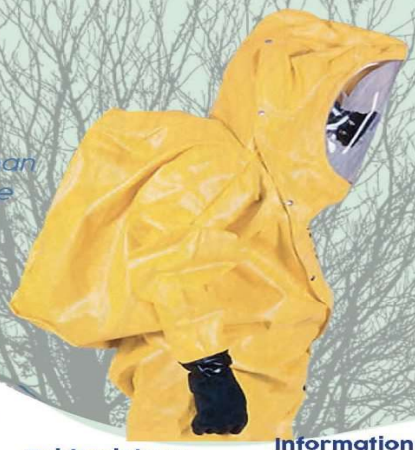

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- Energy conversion technology
- Renewable energy
- Nonrenewable energy / Fossil energy
- Culture and Environmental Development in Coastal Community

Environment

- Environmental Conservation
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- Environmental Technology
- Environmental Health and Toxicology
- Environmental Epidemiology
- Pollution Control
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- Green Infrastructure and Resilience

Epidemiology

- Epidemiology related to disease and health event preventionmand control
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- Occupational epidemiology
- Nutritional epidemiology
- Behavioral epidemiology

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- Supply Chain Information Systems
- Industrial Information Systems
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- Health, Safety and Environment Information Systems

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Faith and development: The role of local religious organization in community change in Papua

Elco van Burg*

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Abstract. Religious organizations have an important role in development aid. For a long time, this role was not acknowledged by the main players in the development arena, but this has changed over the last few decades. Yet, this role is not without tensions, as in particular western donors hold secular perspectives on development and find it hard to deal with organizations that want to provide help as well as spread their religion. In this study, I review the literature on faith-based organizations (FBOs) and present a case-study of how churches in rural areas of Indonesia's Papua province fulfill key roles in local development. To come to a fruitful cooperation between large development organizations and such indigenous churches, an important condition is that the role of religion in daily life of these Papuans needs to be acknowledged.

1 Introduction

In 1998, the World Bank's president James Wolfensohn started the World Faiths Development Dialogue (WFDD) as an independent think-tank and established a 'Directorate on Faith' within the World Bank. Both initiatives targeted to facilitate the cooperation between development donors such as the World Bank and faith-based organizations (FBOs). Soon, these initiatives received broad criticism, as many were afraid this would blur the boundaries between church and state [1]. Despite these criticisms, the World Bank has initiated – or exemplified – a trend towards involving FBOs more in the development agenda. At the same time, the criticism around the role of FBOs remains the same: blurring church-state boundaries, only linked to one faith-group, evangelism, et cetera. In this study, I will first review the role of faith-based organizations in local development and next present a case study of how churches help in developing local communities the Papua province in Indonesia.

2 Development aid and religion

For a long time, FBOs did not get much attention in development aid policies and studies. The main opinion was that development aid policy should focus on economic aspects:

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Wetland management: preparing for climate and coastal change using adaptation pathways

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Abstract. Freshwater ecosystems are among the most threatened in the world. The list of threatened species in freshwater ecosystems is greater than that in terrestrial or marine systems and freshwater vertebrates are particularly at risk. Freshwater wetlands have evolved in coastal zones protected from tidal influence by barrier dune systems. Similarly, estuaries have supported zones of low salinity diluted by flows from land, but water resource development has limited these flows and driven ecological change in estuarine systems. These historical uses of river flows, and the impacts of catchment development on water quality and yields, have combined to threaten coastal wetland ecosystems. They are now under increasing threat through climate change driven alterations to hydroclimatic conditions, as well an rising sea levels which risk inundation of low lying coastal regions, including wetlands. Coastal freshwater systems offer considerable ecosystem services to human systems and host significant biodiversity assets. These have been subjected to increased risk through catchment and coastal development, but are now acutely threatened through changed river flows and elevated sea levels that result from climate change. Managing these systems requires an adaptation pathways approach that accommodates human needs, and society's obligations to global biodiversity.

1 Introduction

Freshwater ecosystems have been identified as being exposed to great risk, owing to factors such as pollutants and river regulation, for many decades. Dudgeon and others [1] identified the five major threats to aquatic biodiversity (Table 1). There are many more species at risk in freshwater systems than in either terrestrial or marine settings, and this is particularly the case for freshwater vertebrates [2]. More recently Reid et al. [3] recognised these major threats as being persistent, and identified twelve emerging risks to freshwater biodiversity systems (Table 1) including the risk of synergistic effects whereby one or more risks interact to create unexpected challenges for management. The challenge for freshwater management still lies very much in the sphere of the legacy effects of past land clearance, waterway modification and human water consumption however global warming will lead to critical impact associated with changing climates as well as rising sea levels. This will ensure the

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Oil palm and banana root colonization potential of locally isolated nitrogen-fixing and phosphate-solubilizing bacteria

Then *Kek Hoe*[1], *Mohamad Roji* Sarmidi[2], *Sharifah Shahrul Rabiah* Syed Alwee[1], and *Zainul Akmar* Zakaria[2*]

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Keywords: oil palm; banana; root; bacteria; electron microscopy

Abstract. Oil palm and banana are the biggest commodity crop and the second largest fruit crop planted in Malaysia. Both oil palm and banana are highly nutrient-demanding crops that requires a large amount of fertilizer input. This presents an opportunity to find alternative source of nutrient that is much cheaper than the imported inorganic fertilizer. Currently, the most feasible alternative to the inorganic fertilizer is the recycling of the organic-rich oil palm empty fruit bunch (EFB) to produce EFB compost as well as the incorporation of nitrogen-fixing bacteria (NFB) and phosphate-solubilising bacteria (PSB) to the EFB compost to increase the supply of nitrogen and phosphorous to the plant at different stages of growth. Hence, the objective of this study was to isolate, screen and identify indigenous bacterium, from the root surroundings of oil palm and banana plant, with highest nitrogen-fixing and phosphate-solubilizing properties. Three NFB and PSB strains (*Enterobacter cloaceae KU886016, Burkholderia cepacia KU925862, Serratia marcescens KU925861*), were successfully isolated and formulated as biofertilizer for evaluation on oil palm and banana seedlings. *Enterobacter cloaceae KU886016* showed higher root colonization ability compared to *Burkholderia cepacia KU925862* and *Serratia marcescens KU925861*, as shown from the FESEM analysis. This finding is important as a direct indication on the suitability of using these bacteria in field application as biofertilizer. Long-term expectation is for this finding to be able to assist in reducing the dependency on imported inorganic fertilizers, reducing operational cost as well as promoting sustainable soil health.

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Trends in domestic energy use reduction and private renewable energy production

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Abstract. Domestic energy use can be directly influenced by personal choices. These choices include the selection of equipment (efficiency), mode of equipment use, consumer behaviour but also by self-production of electricity, space heating and/or cooling. Intelligent meters showing the actual use of electricity give insight in domestic energy use and is crucial in decreasing domestic energy use. However, households need better access to knowledge and experiences of experts to understand the potential choices to decrease their use of energy. Housing and equipment 'labelling' can give some support with these choices, but need to be more uniform and clear. Households controlling their own usage of energy and home production of electricity can make substantial savings on their energy bills. The paper describes experiences in practical situations using long term scientific and professional experiences.

Keywords: Domestic Energy, energy efficiency, renewable energy

1 Introduction

Domestic energy use in the (western) world consists in a large part of heating energy (winter season, applicable e.g. for USA/Canada/most parts of Europe, Asia, including Russia, China, Japan etc.), roughly 2 third. Then for 1 third, a mix of energy for hot tap water, lighting, cooking, and domestic appliances. The higher the income of the household, the more energy is used, which is a global trend. Many energy agencies expect that globally the use of domestic energy will just continue to increase due to the growing income trends in developing countries and that this can lead to energy and resource scarcities and climate affects. Developed countries, on the other hand, have shown a slight decrease in per capita energy use [1]. Besides fossil fuels used in heating (natural gas, fuel oil) also biomass and electricity are showing increasing trends for heating (heat pumps) but also in mobility (electrical cars, charged at home). This paper describes several trends with respect to:

A. *Possibilities to decrease of domestic energy use*
B. *Possibilities to increase production of renewable energy and use by private households*

Results in this paper comes from personal practical experiments and knowledge by the author

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Every Drop of Water Footprint Counts For Humanity

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Abstract. Since 2002, Water Footprint concept was developed by Hoekstra as an indicator of water use behind all the goods and services consumed by one individual or the individuals of a country, more new concepts and definition evolved to 'The water footprint is a measure of humanity's appropriation of fresh water in volumes of water consumed and/or polluted'. Water Footprint answers how earth's limited freshwater resources are being consumed or wasted through pollution or by misuse, abuse and disuse. At the highest level of United Nations, there are Sustainable Development Goals 2030 to achieve development programmes such as 'Leaving No One Behind'. From nations to corporations, reduce Water Footprint contributes to sustainability and in shrinking the Carbon Footprint to conserve energy with less wastages, less wastefulness at all levels. Less Water Footprint, Less Carbon Footprint and Less Global Warming. Every individual as a stakeholder can realise and practise stringently the concept of Every Drop Counts. Developed countries like Singapore consumed more water and yet with widespread education, study found that 'Saving water less of a concern for younger residents'. The author and co-author provide mentorship/internship to Universities and Polytechnic to learn 'Every drop Counts' from concept of Water Footprint. The mentees/interns were driven on learning by listening and undertaking hands-on-real-life measuring individual Water Footprint at their 3-month internship venue called The Living Lab. They collected and used every drop of water drips from the taps in the Living Lab to imbue the true meaning of Every Drop Counts for life-long. Every individual, home, corporation as well as every country when practises water-saving for proper use contribute to humanity. The youngsters and the educated must listen, learn, contribute and secure mother earth's environment.

1 Introduction

The poem, [1] *Rhyme of the Ancient Mariner* has this part stanza,

Water, water, every where,
And all the boards did shrink;
Water, water, every where,
Nor any drop to drink.

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Life Cycle Thinking for Sustainable Consumption and Production towards a Circular Economy

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[2]Center of Excellence on Energy Technology and Environment, PERDO, Ministry of Higher Education, Science, Research and Innovation, Bangkok, Thailand

Abstract. The current model of a linear economy with end-of-pipe waste treatment is not sustainable. Cleaner production helps reduce resource use and emissions, but is still not an optimal solution without considering a life cycle perspective. Life cycle-based tools such as life cycle assessment and life cycle costing are useful for identifying optimal environmental and economic options for product systems. SDG 12 dealing with responsible consumption and production is key for sustainability. Developing ~~of~~ a circular economy requires life cycle thinking and life cycle-based tools for assessment. All these issues are discussed along with illustrative examples.

1 Introduction

Every activity is associated with some consequences; the desired objective of the activity usually leading to some benefit to society but also with some undesired outcomes which are unplanned, but inevitable. In practice, thermodynamics does not allow us to break even and we will end up losing some utility whenever there is an activity or transformation. Activities in nature must also follow this law, but a decrease in entropy is powered by energy from the sun. Activities in nature are part of ecosystems, large and small, which are very delicately but efficiently balanced in a way that there is no waste per se. All elements/substances move in cycles which is, for example, easily evident in the hydrological cycle which represents the cyclic movement of water on earth. There are many such biogeochemical cycles for nitrogen, sulphur and so on. Industrial activities, on the other hand, have largely been developed in a linear format – so called take, make, use and dispose (Figure 1). We take valuable resources from nature, transform them to products which are then used and finally go back to nature in the form of waste – solid, liquid or gaseous. The loop is not "closed". Hence, every activity must somehow lead to some form of pollution being produced.

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A Geomorphic Framework for the Analysis of Microplastics in Riverine Sediments

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Abstract. The wide-spread use and persistence of plastics in the environment have placed them on the list of significant emerging pollutants. In contrast to marine environments, the analysis of plastic debris, including microplastics (particles <5 mm in maximum diameter), in freshwater systems is limited, and even fewer studies have examined microplastics in riverine sediments. Nonetheless, it has become clear that microplastics are now a ubiquitous component of riverine ecosystems and their distribution is dependent on anthropogenic inputs and the physical and chemical processes that control their transport, transformation, and deposition along the drainage network. In many ways, the transport and fate of microplastics will parallel that of other particulate matter that has been extensively studied for at least the last 50 years. Here, we briefly explore the application of a geomorphic approach to the assessment of sediment-contaminated rivers to the microplastic problem, and argue that future studies can significantly benefit by incorporating the principles of this approach into their analyses.

1 Introduction

The ability to mold synthetic polymers (plastics) into an infinite variety of shapes, combined with their versatile nature in terms of weight, strength, durability, melting point, and chemical reactivity have made them virtually indispensable in modern manufacturing. There are about 20 distinct groups of plastics that are extensively used in everything from cosmetic products and cleansers to clothing, to plumbing, to packaging and ropes, among a host of other products. The development of synthetic polymers began in the late 1800s [1], but it was not until the 1950s that plastics were produced on an industrial scale. Since then, plastic production has increased exponentially, reaching 359 million metric tons [2], and is expected to increase significantly in the coming years [3].

Unfortunately, plastics released to the environment represent a significant emerging pollutant found in atmospheric, terrestrial, freshwater and marine systems. Microplastics (MPs), in particular, have received considerable attention as a global pollutant. While the definition of what constitutes a MP is a topic of debate, the most widely used definition is any plastic item measuring <5 mm in its maximum (long) dimension, a size that can be

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