Volume: 7 Issues: 45 [December, 2022] pp. 428- 437
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.ijafb.com
DOI: 10.55573/IJAFB.074532

THE TIN INDUSTRY AND ITS RESILIENCE TO THE ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY IN MALAYSIA

Yamuna Rani Palanimally[1]
Zam Zuriyati Mohamad[2]
Meenah Ramasamy[3]
Sonia Johanthan[4]

[1]Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR), Kampar, Malaysia, (Email: yamunarp@utar.edu.my)
[2] Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR), Kampar, Malaysia, (Email: zuriyati@utar.edu.my)
[3] Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR), Kampar, Malaysia, (Email: meenah@utar.edu.my)
[4] Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR), Kampar, Malaysia, (Email: sonia@utar.edu.my)

Article history
Received date : 6-11-2022
Revised date : 7-11-2022
Accepted date : 19-12-2022
Published date : 15-1-2023

To cite this document:
Palanimally, Y. R., Mohamad, Z. Z., Ramasamy, M., & Johanthan, S. (2023). The Tin Industry and Its Resilience to The Economic and Environmental Sustainability in Malaysia. *International Journal of Accounting, Finance and Business (IJAFB)*, 7(45), 428 - 437.

Abstract: *Malaysia's early economic development was initially driven by tin, a natural resource that is not renewable. For the majority of the 20th century, it accounted for a significant portion of export earnings. According to Sanchez & Hartlieb (2020), the tin industry has faced challenging operating environment sustainability over the past few decades, particularly in terms of decreasing ore grades, deeper deposits, and harder rock mass. Despite this, the mining industry has been urged to be more environmentally friendly in their operations due to the mining activity's negative effects on environmental stability, pollution, water quality, and biodiversity (Nurtjahya, Franklin, & Agustina, 2017). Additionally, the COVID-19 pandemic has exacerbated the already difficult situation for the tin industry. Whether they like it or not, the tin industry must overcome obstacles to survive. To put it another way, we need a strong tin industry that can bounce back from setbacks and move forward not only for success but also to make the country better. The adopting of digital technology to improve operation efficiency, green technology to lessen the impact on the environment, managing sufficient financial resources to overcome the economic crisis and encouraging product development to increase customer satisfaction are all options for making the industry resilient.*

Keywords: *Resilience of tin industry, Digital technology, Financial resources, Green technology, Product development.*

Volume: 7 Issues: 45 [December, 2022] pp. 428- 437
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.ijafb.com
DOI: 10.55573/IJAFB.074532

Introduction

Malaysia's tin production continued to grow steadily to reach a peak of 52,000 tons in 1904, thereafter leveling at around 50,000 tons per year. Production declined during World War I as a result of export controls and shipping disruptions. With economic recovery tin output expanded and by 1937 Malaysia achieved its largest ever production. According to Gunarathne et al., (2016) the mining industry is "dirty, dangerous, and difficult" (3D), and it faces difficult challenges related to social sustainability and industrial safety. The nation's economy was once heavily reliant on the tin mining industry. Malaysia produced nearly 63,000 tonnes in 1979, accounting for 31% of global output. It employed more than 40,000 people and was the world's largest producer. According to Sanchez and Hartlieb 2020, the tin industry has faced a challenging operating environment over the past few decades, particularly with regard to deeper deposits, harder rock masses, and deposits with decreasing mineral content. However, industry has been urged to be more environmentally conscious in their operations due to mining's negative effects on biodiversity, environmental stability, pollution, and water quality (Nurtjahya, Franklin, & Agustina, 2017). In a recent survey conducted by Sahabat Alam Malaysia (SAM) it was found that the tin mining operation was a mere 500 meters from the coastline causing pollution of coastal fishing zone (Malaysiakini, 2015). A review about the environmental impacts of bauxite mining in Malaysia found that the mining processes cause air, water, soil and thus, food contamination. Dust emissions, leaching of toxic chemicals in the water and soil, cause heavy environmental impacts. Due to the high levels of capital investment required for infrastructure development and operation, high confidence for long term activity is critical (Lee, K.Y. & Ho, L.Y. & Tan, K.H. & Tham, Y.Y. & Ling, S.P. & Qureshi, A.M. & Ponnudurai, T. & Nordin, R.B. (2017). Given these circumstances, interruptions by extreme weather events that can be costly and impact on the long-term sustainability of the mine are unwelcome and can be problematic (Hodgkinson et al., 2014; Farrant, 2016; Cahoon et al., 2016). Additionally, the tin industries' predicament has been exacerbated by the global economic downturn brought on by the COVID-19 pandemic. Whether they like it or not, the tin industry must overcome obstacles to survive. This indicates that we require a tenacious tin industry that is capable of overcoming adverse circumstances and moving forward to not only achieve success but also contribute to the improvement of the nation. However, it is important to keep in mind that unseen events such as the COVID-19 outbreak can have a significant impact on the GDP as a whole and the contributing sectors. Therefore, it is evident that the suspension of the construction industry poses a significant threat to the economy's stability. At the end of Q4 2021, the economy experienced a smaller decline in all sectors' GDP of 2.6%. The values are shown in Table 1.

Table 1: Sector-wise quarterly gross domestic product (GDP) of Malaysia.

Sector	GDP in Q1'2020	GDP in Q4'2020	GDP in Q1'2021	GDP in Q4'2021
Construction	-7.9%	−13.9%	−10.4%	- 20.9%
Services	3.1%	- 4.8%	−2.3%	2.6%
Manufacturing	1.4%	3.0%	6.6%	8.8%
Agriculture	−8.6%	−1.0%	0.4%	0.4%
Mining	−2.9%	−10.4%	−5.0%	- 2.5%

Note: Department of Statistics Malaysia. Malaysia Economic Performance Fourth Quarter 2020 and 2021

The objectives of the research are as follows:

1. to determine the elements that contribute to the resilience of the tin industry.
2. to ascertain how the resilient tin industry impacts society, the environment, and the economy.
3. to create a robust model for the tin industry.

Volume: 7 Issues: 45 [December, 2022] pp. 428- 437
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.ijafb.com
DOI: 10.55573/IJAFB.074532

Literature Review

Resilience Theory

Resilience is defined as the ability to minimise the costs of a disaster, to return to a state as good as or better than the status quo ante, and to do so in the shortest feasible time. Resistance is used to mean the ability to withstand a hazard without suffering much harm (Gilbert 2010, p. 11). The term resilience implies both the ability to adjust to 'normal' or anticipated stresses and strains and to adapt to sudden shocks and extraordinary demands. In the context of hazards, the concept spans both pre-event measures that seek to prevent disaster-related damage and post-event strategies designed to cope with and minimise disaster impacts" (Tierney 2003, p. 3). Resilience is characterised by concepts like "survival," "recovery," and "thriving," which describe a person's state before, during, and after adversity. According to O'Leary (1998), a person is said to be able to "thriving" if they are able to grow and function despite being repeatedly exposed to stressful situations. According to Lederesma (2014), resilience is the capacity to overcome adversity, disappointment, and misfortune which is necessary for an effective leader. The study of adversity and an interest in how adverse life experiences harm people are the foundations of resilience theory (Van Breda, 2018).

Digital Technology

According to Bolat, Kooli, and Wright (2016), digital technologies are transforming industry, products, procedures, and operations. Technological advancements have driven a dizzying rate of change in the workplace. According to Schildt (2017), management professionals' roles have evolved in the digital age, with them now being in charge of both the efficiency and output of automation as well as the drivers of a business process. The use of automated systems that can link data from one department to another will help cut down on manual documentation and the number of times the same tasks are done. Service efficiency and workplace congestion will both improve in a workspace designed with the internet of things.

Green Technology

According to Izvekova, Roy, & Murgul (2016), green technology is the creation and implementation of products, equipment, and systems that conserve the natural environment and resources, encourage the use of renewable resources, and minimize and reduce the negative impact of human activities. The use of eco-friendly technology in the tin industry has the potential to improve people's quality of life while also reducing costs associated with maintenance, employee health care, and energy and water use. Reusing recyclable materials can also help an organisation save money and energy (Jainudin et al., 2017). It is anticipated that the company will reduce office energy and water consumption by utilising rainwater storage, maximizing natural light, and installing energy-efficient light bulbs. Utilizing green technology will result in the production of renewable energy like wind and solar power. Additionally, the natural open space will benefit workers in the tin industry.

Financial Resource

According to Stacey (2011), a company's financial resource is an asset that is used to settle liabilities and an obvious resource that must be available for strategies to be implemented. Stacey pointed out that organisations were able to acquire other kinds of resources thanks to financial resources, which they use for operations that support the company's existence. According to Gill & Biger (2012), a small business's survival and success are significantly impacted by adequate financing, without which the business would fail. According to

Volume: 7 Issues: 45 [December, 2022] pp. 428- 437
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.ijafb.com
DOI: 10.55573/IJAFB.074532

Yallapragada and Bhuiyan (2011), adequate financial resources are one of the most important factors in determining a small business's success.

Product Development

Product development can be characterised as a "cycle that incorporates the specialized plan, Research and development, assembling, the board and business exercises engaged with the showcasing of a new (or improved) product"(Alegre and Chiva, 2008).Innovative product turns into a vital point in the business where through creative item, clients gain benefits from the sides of either the new element, plan or capability. According to Khan, Ahmad, and Ramayah (2010), a product is considered innovative when its customers benefit in multiple ways from the novel design, function, and feature. According to Janssen, Stoopendaal, and Putters (2015), there are two types of innovation: novelty and newness.

Tin Industry Resilience

In the early years of its independence, Malaysia relied heavily on rubber and tin exports and used the revenue from these industries to boost agricultural productivity and reduce poverty. According to Sach, & Maennling (2015), revenues from tin and rubber were used to subsidize and encourage the growth of the palm oil industry, as well as to establish the Palm Oil Research Institute of Malaysia (PORIM) in order to raise yield rates. Malaysia only accounts for less than 1.5% of the world's total tin production today. Malaysia needs a resiliant tin industry that can overcome difficult circumstances and maintain global competitiveness. Companies with resilience are able to effectively respond to unforeseen occurrences, recover from crises, and even foster future success (Duchek, 2020). According to Barasa, Mbau, & Gilson (2018), resilience is a result of both adapting to difficulties and planning for future crises (planned resilience). It is anticipated that product innovation, digital technology, environmentally friendly technology, adequate financial resources, and resilience will all be contributing factors to economic growth, sustainable environment and prosperous society.

Economic Growth

The term "economic growth" refers to an increase in an economy's total production. According to David Stuckler, Sanjay Basu, Marc Suhrcke, Adam Coutts, and Martin McKee, healthcare workers are impacted by job insecurity, decreased purchasing power, and reduced opportunities in the labor market in the event of an economic recession. In addition, it has been hypothesized that the restrictive policies that governments typically implement in an effort to balance budgets and reduce deficits typically target the largest spending sectors, such as health, and that these economic recessions are frequently exacerbated by reductions in welfare support and salary reductions. salary reductions and job losses for health care workers are two factors that exacerbate migration intentions (Humphries, Crowe, McDermott, et al., a rise in the tendency to engage in concurrent profit-generating activities, frequently at the expense of the quality of service (Giuliano Russo, Inês Rego, Julian Perelman, Pedro Pita Barros, 2017), decreased motivation (Williams, Thomas, S., (2017)), unwanted organisational changes (Kerasidou, Kingori P., 2019), and Productivity will rise in a resilient workplace, which will eventually contribute to economic expansion. A better understanding of workplace resilience makes it possible to develop policies that can lessen the negative effects of economic change on people and increase the process's longevity (Adger, 2000).

Sustainable Environment

Environmental sustainability is defined as responsible interaction with the environment to avoid depletion or degradation of natural resources and allow for long-term environmental quality.

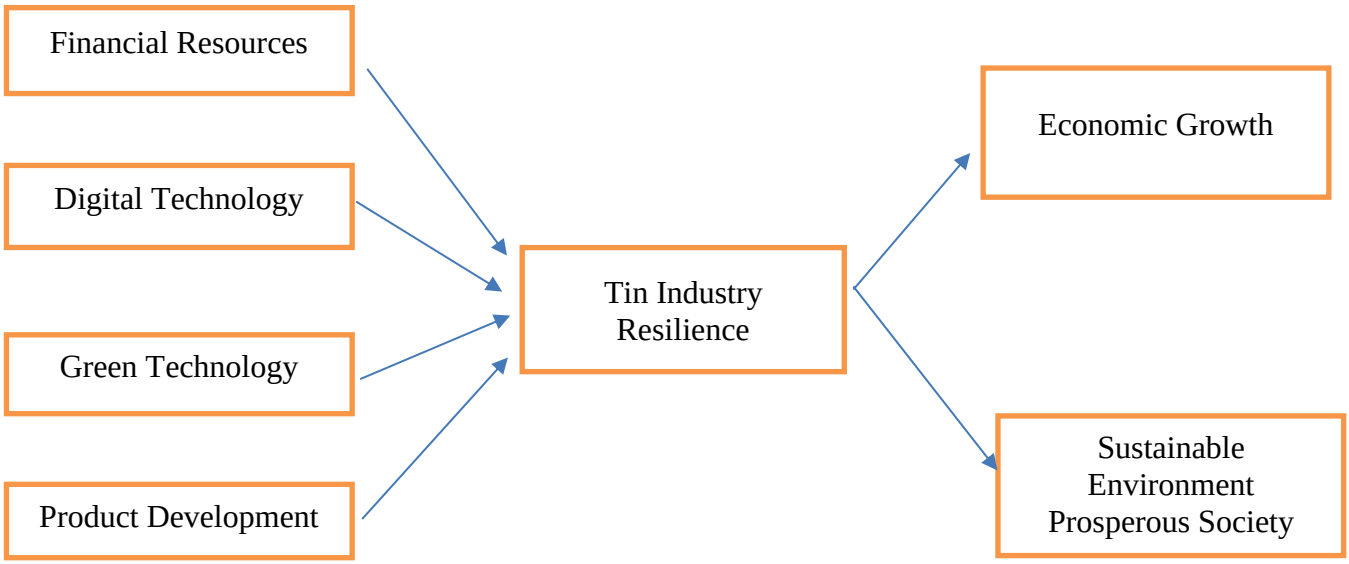
Volume: 7 Issues: 45 [December, 2022] pp. 428- 437
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.ijafb.com
DOI: 10.55573/IJAFB.074532

Environmentally sustainable health care facilities are those that improve, maintain or restore health, while minimising negative impacts on the environment and leveraging opportunities to restore and improve it (World Health Organization, 2017). Building climate resilience and environmental sustainability are best addressed together for achieving synergies and resource efficiency. To address these environmental challenges, scholars, industry, and civil society have been discussing and proposing approaches and mechanisms that could mitigate or remove the impact of the activities of organisations, supply chains, and communities on the natural environment. Research and practice converge to the fact that to achieve superior environmental performance organisations, supply chains, and communities must align all their internal processes (including their decision making processes) to focus on the impact of their activities on the natural environment (Joyce and Paquin, 2016). This is what the literature refers to as green operations (Nunes and Bennett, 2010) and green supply chains (Srivastava, 2007, Wong et al., 2012). Adopting such a perspective in a coherent and comprehensive way facilitates the emergence of green business models (Nair and Paulose, 2014), where the focus of the organisation, supply chain, or community is to reduce or eliminate the impact of their activities on the natural environment.

Proposed Conceptual Framework

The proposed conceptual framework below was developed based on resilience theory. The enabler factors for tin industry resilience are financial resources, digital technology, green technology and product development. Subsequently, the tin industry resilience is expected to contribute to sustainable community which is from the perspective of economic growth and sustainable environment.

Figure 1: Proposed Conceptual Framework



Hypothesis

H1: Financial resources will have a positive significant impact on tin industry resilience.
H2: Digital technology will have a positive significant impact on tin industry resilience.
H3: Green technology will have a positive significant impact on tin industry resilience.
H4: Product Development will have a positive significant impact on tin industry resilience.
H5: Tin industry resilience will have a positive impact on economic growth.
H6: Tin industry resilience will have a positive impact on sustainable environment.

Volume: 7 Issues: 45 [December, 2022] pp. 428- 437
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.ijafb.com
DOI: 10.55573/IJAFB.074532

Research Methodology

In order to achieve research objectives 1 and 2, a quantitative data collection involving the distribution of the questionnaire will be carried out. The employees of tin industry companies in Perak, Selangor, and Johor who are involved in accounting/finance, production, and technology are the study's target population. The three states of Johor, Selangor, and Perak were chosen due to their wealth in the tin field. A convenient sampling method will be used because there is no sampling frame. In this regard, the respondents will be approached to answer the questionnaire and how easy it is for them to do so. The example size will be founded on idea by Hinkin (1998) by which the appropriate sample size in light of the thing reaction proportion is gone from 1:4 to 1:10. It is anticipated that there will be five items from each variable. As a result, there will be 40 items all together. This will lead to a sample size range of 40 to 400. Another justification in determining the sample size is based on the suggestion for conduction partial least square structural model (PLS-SEM) analysis that used minimum sample size estimation method in PLS-SEM is the "10-times rule" method (Hair et al., 2011), which builds on the assumption that the sample size should be greater than 10 times the maximum number of inner or outer model links pointing at any latent variable in the model. Based on the suggestion, the number of sample size for this study will be 120. Therefore, the sample size for this study will be 120 as it will apply the PLS SEM data analysis. Taken into consideration that there might be invalid response, a total of 200 questionnaires will be distributed. The questionnaire will be designed based on adequate financial resources, digital technology, green technology, resilient tin industry, economic growth, and prosperous society. The collected data will be analysed using the Partial Least Square Structural Equation Model (PLS SEM). PLS SEM is an essential tool to assess the connections between multiple variables in the chains and analyses instantaneously in a model. Below is the expected equation model:

$$TIR = \beta + \beta FR + \beta DT + \beta GT + \beta PI + \varepsilon \quad (1)$$

$$EG = \beta + \beta TIR + \varepsilon \quad (2)$$

$$SE = \beta + \beta TIR + \varepsilon \quad (3)$$

Where, β=Constant, TIR=Tin Industry Resilience, FR=Financial Resources, DT=Digital Technology, GT = Green Technology, PI = Product Innovation, EG = Economic Growth, SE = Sustainable Environment, Ɛ=Error term.

A measurement model will be evaluated using indicator loading, internal consistency reliability and convergent validity. Indicator loading with value above 0.70 is generally recommended, otherwise the item will be removed from the model. Internal consistency reliability will be assessed using Composite Reliability (CR), Cronbach' alpha and rho_A. CR values between 0.70 and 0.90 are ranged as "satisfactory to good" (Hair, Risher, Sarstedt, & Ringle, 2019). Convergent validity will be assessed using Average Variance Extracted (AVE). Subsequent step is to determine the collinearity using Variance Inflation Factor (VIF). The suggested VIF is below 3 (Hair et al., 2019). Next, a Heterotrait Monotrait ratio (HTMT) will be performed to evaluate the discriminant validity. The values are below 0.85 indicates the establishment of discriminant validity. This is to ensure that the latent constructs used for measuring the causal relationship between the variables are different from each other. Finally, in depth analysis of R-square and Q-square will be performed to determine the path coefficient. These outcomes will be applied in determining whether the hypotheses will be accepted or not.

In order to achieve research objective 3, a Fuzzy Delphi Method (FDM) will be conducted. The following FDM procedures will be performed in this proposed study. The first step is extracting

Volume: 7 Issues: 45 [December, 2022] pp. 428- 437
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.ijafb.com
DOI: 10.55573/IJAFB.074532

a resilient tin industry model based on literature reviews. The list will be categories into three stages which are anticipation, coping and adaptation. The second step is to design the questionnaire using a linguistic variable. Thereafter, the questionnaires will be sent to the experts such as green building officers, digital technology experts and experts in tin industry. The selection of experts is very crucial as their opinion will lead to the success of FDM application. In addition, it was suggested by Tsai, et. al (2020) that FDM required samples of 10 to 15 participants. In this study, it is expected to have 15 participants comprising 5 experts from academia, 5 from government and 5 experts from the industry. Next step is conducting the fuzzification where the measurement scale in the questionnaire transformed into a triangular fuzzy scale as shown in Table 2.

Table 2: Likert Scale, Linguistic Change Enables and Fuzzy Scale.

Likert scale	Linguistic Change	EnableFuzzy Scale
1	Least important	(0.00, 0.00, 0.25)
2	Moderately important	(0.00, 0.25, 0.50)
3	Strongly important	(0.25, 0.50, 0.75)
4	Very strongly important	(0.50, 0.75, 1.00)
5	Extremely important	(0.75, 1.00,1.00)

In this triangular fuzzy scale, the maximum and minimum value of experts' opinions are considered as two station points while the geometric mean represents the participants' score of triangular fuzzy scale in order to achieve statistical unbiased results. It also prevents the effect of extreme values (Mahdiyar, Mohandes, Durdyev, Tabatabaee, & Ismail, 2020). The next step is to compute the aggregation of the experts' opinion and defuzzification to obtain the crisp value as the importance indicators for tin industry resilience. The indicators will then be selected based on the threshold. The computation for the threshold is presented below:

$$Ei\ (a) = (li, mi, ui),\ i = 1,2,3\ \ldots.\quad .n \qquad (1)$$

$$A(a) = (lA, mA, uA), = (\min li\ , GMmi,, \max\ ui) = 1,2,3,\ldots \qquad (2)$$

Whereby Ei (a) = refers to the triangular fuzzy numbers from experts' opinion (i), m, n refer to minimum value of fuzzy number, geometric mean, and maximum value.

$$DA\ (a) = (\ lA\ + 4 \times mA, uA)/\ 6$$

$$T = \Sigma s\ a = 1DA\ (a)/\ S$$

where DA is the defuzzified number of aggregated experts' opinion for the resilience indicator and T is the threshold value. If DA (a). ≥ T, the indicators are selected, if Da(a) ≤, the indicators should be rejected. In order to identify and quantify the indicators, the Interpretive Structural Modeling (ISM) will be applied. The findings will enable us to develop the tin industry resilience model which is research objective 3.

Conclusion

Future uncertainties will confront the mining industry; especially with regard to price and demand around the world. The tin industry's setbacks necessitate structural adjustments and rationalisation in order to maintain its cost efficiency. The mining industry has been heavily reliant on a small number of minerals, placing it at risk during times of low demand, high prices, and depleting reserves. However, the tin industry's resilience can eventually be improved by

Volume: 7 Issues: 45 [December, 2022] pp. 428- 437
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.ijafb.com
DOI: 10.55573/IJAFB.074532

adopting adequate digital technology, green technology, and product development with sufficient financial resources.

References

Adger, W. N. (2000). Social and ecological resilience: Are they related? Prog. Hum. Geogr., 24, 347–364. Gill, R., & Orgad, S. (2018). The Amazing Bounce-Backable Woman: Resilience and the Psychological Turn in Neoliberalism. *Sociological Research Online, 23*(2), 477-495. doi: 10.1177/1360780418769673

Alegre, J., &Chiva, R. (2008). Assessing the impact of organisational learning capability on product innovation performance: An empirical test. Technovation,28(6), 315–326. https://doi.org/10.1016/j.technovation.2007.09.003

Barasa, E., Mbau, R., & Gilson, L. (2018). What is resilience and how can it be nurtured? A systematic review of empirical literature on organisational resilience. *International journal of health policy and management*, *7*(6), 491.

Bolat, E., Kooli, K. & Wright, L. T. (2016). Businesses and Mobile Social Media Capability. *Journal of Business & Industrial Marketing*, *31*(8), pp. 971-981.

Cordero, A. C., Rahe, U., Wallbaum, H., Jin, Q., & Forooraghi, M. (2017). Smart and Sustainable Offices (SSO): Showcasing a holistic approach to realise the next generation offices. *Informes de la Construcción*, *69*(548), e221.

Duchek, S. (2020). Organisational resilience: a capability-based conceptualization. *Business Research*, *13*(1), 215-246.

Gray, P., Senabe, S., Naicker, N., Kgalamono, S., Yassi, A., & Spiegel, J. M. (2019). Workplace-based organisational interventions promoting mental health and happiness among healthcare workers: A realist review. *International journal of environmental research and public health*, *16*(22), 4396.

de Fátima Castro, M., Mateus, R., & Bragança, L. (2017). Healthcare building sustainability assessment tool-sustainable effective design criteria in the portuguese context. *Environmental Impact Assessment Review*, *67*, 49-60.

Gill, A. &Biger, N. (2012). Barriers to small business growth in Canada. Journal of Small Business and Enterprise Development, 19, 656-668. doi:10.1108/146260012111277451

Gunarathne, Nuwan & Samudrage, Dileepa & Wijesinghe, Dinushi & Lee, Ki-Hoon. (2016). Fostering social sustainability management through safety controls and accounting: A stakeholder approach in the mining sector. Accounting Research Journal. 29. 10.1108/ARJ-04-2015-0062.

Harrington, L. M. B. (2016). Sustainability theory and conceptual considerations: a review of key ideas for sustainability, and the rural context. *Papers in Applied Geography*, *2*(4), 365-382.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2–24.

Izvekova, O., Roy, V., & Murgul, V. (2016). Green Technologies in the Construction of Social Facilities. *Procedia Eng., 165*, pp. 1806-1811.

Jainudin, N. A., Jugah, I., Ali, A. N. A. & Tawie, R. (2017). The Acceptance of Green Technology: A Case Study in Sabah Development Corridor. AIP Conference Proceedings 1875(1):030001, DOI: 10.1063/1.4998372

Janssen, M., Stoopendaal, A.M.V.& Putters, K. (2015). Situated novelty: Introducing a process perspective on the study of innovation. Research Policy, 44(10), 1974-1984.

Khin, S., Ahmad, N.H.&Ramayah, T. (2010). Product innovation among ICT technopreneurs in Malaysia. Business Strategy Series, 11(6), 397-406.

Khunwishit, S., Choosuk, C., & Webb, G. (2018). Flood resilience building in Thailand: Assessing progress and the effect of leadership. *International Journal of Disaster Risk*

Volume: 7 Issues: 45 [December, 2022] pp. 428- 437
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.ijafb.com
DOI: 10.55573/IJAFB.074532

Science, *9*(1), 44-54.

Lee, K.Y. & Ho, L.Y. & Tan, K.H. & Tham, Y.Y. & Ling, S.P. & Qureshi, A.M. & Ponnudurai, T. & Nordin, R.B.. (2017). Environmental and Occupational Health Impact of Bauxite Mining in Malaysia: A Review. International Medical Journal Malaysia. 16. 137-150. 10.31436/imjm.v16i2.346.

Marchese, D., Reynolds, E., Bates, M. E., Morgan, H., Clark, S. S., & Linkov, I. (2018). Resilience and sustainability: Similarities and differences in environmental management applications. *Science of the total environment*, *613*, 1275-1283.

Mahdiyar, A., Mohandes, S. R., Durdyev, S., Tabatabaee, S., & Ismail, S. (2020). Barriers to green roof installation: An integrated fuzzy-based MCDM approach. *Journal of Cleaner Production*, 122365.

Nurtjahya, E., Franklin, J., & Agustina, F. (2017). The Impact of tin mining in Bangka Belitung and its reclamation studies. In *MATEC Web of Conferences* (Vol. 101, p. 04010). EDP Sciences.

Roscoe, J.T. (1975) Fundamental Research Statistics for the Behavioural Sciences, 2nd edition. New York: Holt Rinehart & Winston.

Sánchez, F., & Hartlieb, P. (2020). Innovation in the Mining Industry: Technological Trends and a Case Study of the Challenges of Disruptive Innovation. *Mining, Metallurgy & Exploration*, 1-15.

Sachs, L. E., & Maennling, N. (2015). Resource Resilience: How to Break the Commodities Cycle. *World Politics Review, May 26, 2015*.

Steelcase Inc (2020) https://www.steelcase.com/spaces-inspiration/resilient-workplace/#additional-resources. Retrieved 24 January 2021

Shreffler, J., Petrey, J., & Huecker, M. (2020). The impact of COVID-19 on healthcare worker wellness: A scoping review. *Western Journal of Emergency Medicine*, *21*(5), 1059.

Stacey, R., (2011). Strategic management and organisational dynamics: The challenge of complexity. (6th ed.) Boston, MA: Pearson Education Company.

Sultan Nazrin Shah. 2017. Charting the Economy: Early 20th Century Contemporary Malaysian Contrasts. Kuala Lumpur: Oxford University Press.

Teng-Calleja, M., Hechanova, M. R. M., Sabile, P. R., & Villasanta, A. P. V. P. (2020). Building organisation and employee resilience in disaster contexts. *International Journal of Workplace Health Management*

Thoburn, J. T. 1994. Tin in the World Economy. Edinburgh: Edinburgh University Press.

Trebilcock-Kelly, M., Soto-Muñoz, J., & Marín-Restrepo, L. (2019, November). Adaptive thermal comfort for resilient office buildings. In *Journal of Physics: Conference Series* (Vol. 1343, No. 1, p. 012148). IOP Publishing.

Tsai, H. C., Lee, A. S., Lee, H. N., Chen, C. N., & Liu, Y. C. (2020). An Application of the Fuzzy Delphi Method and Fuzzy AHP on the Discussion of Training Indicators for the Regional Competition, Taiwan National Skills Competition, in the Trade of Joinery. *Sustainability*, *12*(10), 4290

Van Breda, A. D. (2018). A critical review of resilience theory and its relevance for social work. *Social Work*, *54*(1), 1-18.

Wong, L. K. 1965. *The Malayan Tin Industry to 1914. Tucson*: University of Arizona Press.

World Health Organisation (2017). Environmentally Sustainable Health Systems: A Strategic Document. Available online

https://www.euro.who.int/__data/assets/pdf_file/0004/341239/ESHS_Revised_WHO_web.pdf (accessed on 19 October 2020)

Yallapragada, R., & Bhuiyan, M. (2011). Small business entrepreneurship in the United States.Journal of Applied Business Research, 27, 6. Retrieved from http://www.aabri.com

Volume: 7 Issues: 45 [December, 2022] pp. 428- 437
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.ijafb.com
DOI: 10.55573/IJAFB.074532

Yip, Y. H. 1969. *Development of the Tin Mining Industry of Malaya*. Kuala Lumpur: University of Malaya Press.