Hosted by:

SOCIETY FOR PROMOTION OF SUSTAINABLE DEVELOPMENT GOALS
PPM-023-14-07012020

APPGM-SDG
DILULUSKAN OLEH PARLIMEN MALAYSIA KE-15

Akademi MySDG Academy

VOLUME 3

ECONOMIC, ENVIRONMENTAL & SOCIAL WELLBEING

Building Inclusive Communities

Proceedings from MySDG Conference

Editor:
Zoel Ng

VOLUME 3

Economic, Environmental & Social Wellbeing

MySDG Academy
Society for the Promotion of Sustainable Development Goals (SDGs)

Published by:

Persatuan Promosi Matlamat Pembangunan Lestari

(Society for the Promotion of Sustainable Development Goals)

A-1-10, Blok A, 8 Avenue, Jalan Sungai Jernih 8/1, Seksyen 8,

46050 Petaling Jaya, Selangor

ISBN: 978-629-97554-9-4

TABLE OF CONTENT

Chapter 6

Socio-Economic Empowerment of Poor Community through Biochar-Themed Social Enterprise Initiative in Jeli, Kelantan

Palsan Sannasi Abdullah, Siti Nuurul Huda Mohammad Azmin, Zul Ariff Abdul Latiff, Ch'ng Huck Ywih, Ahmad Saufi Mohd Nawi, Muhammad Nurfaiz Abd Kharim & Akmal Adilah Idris

ABSTRACT

Building inclusive communities is a critical element in achieving many of the outlined sustainable development goals (SDGs). In this successive project undertaken through UMK-MoF Social Enterprise Program 2.0, the focus is on poor community members living in the surrounding areas of Kuala Balah, Jeli, Kelantan. This on-going project aims to elevate their socio-economic standing by providing a starting point for work and business opportunities through a social enterprise framework. Current participants consisting of 3 females and 2 males are being trained in the areas of biomass material conversion including biochar, coco peat, and compost for product development. The creation of value and supply chain cover the up-scaling activities of biomass waste collection & conversion, raw material sourcing & preparation, media formulation processing, blending & production, packaging, marketing, sales, and distribution of biomass-derived products. This will directly and indirectly lead to generation and increase of income for the participants and community members. A biochar community co-operative has just been established and membership is open to all community members. The co- operative will oversee the up-scaling of product development process progression. This is in line with one of the key economic activity areas stated in the National Co-operative Policy which is agriculture and agro-based industry, and Economy Planning Unit's (EPU) hope in realising biomass industry potential. In order to attain market competitiveness, efforts on demand creation through community product branding, improved packaging, and production certification are being explored. The social enterprise model adoption allows them to help themselves, and for them to help other community members in return, and will ensure the continuation flow of benefits. The project's success is expected to have a significant impact on the local community, providing sustainable livelihood opportunities, reducing and managing poverty, enhancing environmental sustainability, and promoting inclusive development.

INTRODUCTION

Building inclusive communities is a critical element in achieving many of the outlined sustainable development goals (SDGs). This resonates well with the 1st and 3rd pillars of the *Belanjawan 2023*, i.e., Inclusive and Sustainable Economic Growth, and Combating Inequality Through Social Justice, respectively. Furthermore, it captures the spirit of the letter 'M' for *Mampan* (sustainable), and 'A' for *Aman Makmur (Kesejahteraan)* (peace, prosperity, and well-being), (Ministry of Finance, n.d.) of the MADANI Development concept. As a prelude, we are into the 3rd year of the 12th Malaysia Plan (12th MP) running from 2021-2025, which maps the course of the nation's development towards building a prosperous, inclusive, and sustainable Malaysia. The 12th MP Plan contains three themes, four policy enablers, and fourteen game changers. The three themes emphasise strategies and initiatives towards (i) resetting the economy, (ii) strengthening security, wellbeing, and inclusivity, and (iii) advancing sustainability. Sustainable and inclusive development has always been a key principle in the nation's development planning for people to benefit from socioeconomic development, achieve inclusivity and social cohesion, and improve general well being (Ministry of Economy, n.d.). The national development priorities are well aligned, and effective execution of the 12th MP will contribute to achieving the 2030 Agenda for Sustainable Development. As we are all aware, this is a global commitment towards a more sustainable, resilient and inclusive development, with 17 SDGs. As we see it, inclusivity and sustainability must go hand in hand with socio-economic empowerment of the target community.

Moving forward, in our project context we've picked the three relevant key areas highlighted in the 12th MP and by the Economic Planning Unit (EPU), which are biomass industry, green growth, and circular economy. Given the vast availability of biomass resources, the biomass industry has the potential to be developed further, attract investment, and create new job opportunities. This industry also adopts the circular economy concept by reusing waste and contributing to the reduction of greenhouse gas emissions. Every effort from all members of the society will help towards attaining a greener future indeed (Fadzil et al., 2022). In this successive project undertaken through UMK-MoF Social Enterprise Program 2.0, the focus is on poor community members living in the outskirts of Kuala Balah, Jeli, Kelantan. This on-going project aims to elevate their socio-economic standing by providing a starting point for work and business opportunities through a social enterprise framework. Aptly, the project objectives are: (i) to increase the production capacity of biochar-derived products in a sustainable manner to meet current and new market needs; (ii) to improve the image of biochar- enriched crop planting media products through branding and packaging towards certification requirements for more effective marketing; and (iii) to provide a starting point for work and business opportunities for local poor communities to generate new income. The cross-cutting co-benefitting SDG areas in this project are SDG 1 (No poverty), 2 (Zero

hunger), 8 (Decent work and economic growth), 12 (Responsible consumption and production), and 13 (Climate action).

SOCIO ECONOMIC EMPOWERMENT OF THE POOR COMMUNITY

According to Statista (2022), in 2020, the state of Kelantan had the second highest poverty rate in Malaysia with 21.2% of the population living below the average Poverty Line Income (PLI), after Sabah (25.3%). The average PLI for Malaysia was RM2,208 (with RM1,169 for food and RM1,038 for non- food items) in 2019; and RM2,589 (with RM1,198 for food and RM1,392 for non-food items) in 2022. The average PLI for the state for Kelantan was slightly lower at RM2,139 (with RM1,181 for food and RM959 for non-food items) in 2019 (Department of Statistics, Malaysia, 2023a; eKasih, 2021), and increased to RM2,297 (with RM1,196 for food and RM1,101 for non-food items) in 2022 (Department of Statistics, Malaysia, 2023b). Based on the MyCensus 2020 data, the Jeli Parliament constituency (P.030) has a population of 78,952 people with an incidence of poverty reading of 18.9%; while Kuala Balah (N.38) has a population of 17,684 people with an incidence of poverty reading of 12.1% (Open DOSM, n.d.). The hardcore poor are referred to those living below the average PLI of RM1,198 (national) or RM1,196 (Kelantan) based on year 2022 data (Department of Statistics, Malaysia, 2023b); up from RM1,169 (national) or RM1,181 (Kelantan) in 2019 (eKasih, 2021).

As such there comes the urgency to find measures to improve the livelihood of these folks. This by no means is meant as mooting continuous or prolonged financial assistance through handouts and subsidies. The process must be towards liberating them from the poverty cycle. The socio-economic empowerment must reflect the ability of the community to initiate ways of motivating themselves to elevate their knowledge, skills, for betterment of living quality, and generate new and additional income. The participants in this project are expected to become the example of what can be achieved by all. The three components of empowerment i.e., clarity is conveyed through the project objectives, next, support is provided through knowledge transfer and capacity building activity, with resources, and finally autonomy is attained and practised through the opportunity presented to upgrade themselves and the community.

BIOCHAR-THEMED INITIATIVES

Biochar can be produced from a broad range of biomass materials such agricultural refuse, crop residues, agro-industry waste, food and yard waste, among others. As plants grow, it captures carbon dioxide (CO2) from the atmosphere during photosynthesis and uses it to synthesise more biomass. Towards the end of plants or crops life cycle, instead of subjecting the waste biomass (i.e., plant or crop residues) to open burning that pollutes, endangers health, and increases greenhouse gases emission, the wastes are utilised for biochar making. This is achieved through the

controlled burning process of the organic material in a low-oxygen environment, namely through carbonization and pyrolysis. These processes convert the carbon in the biomass to a more stable and concentrated biochar form. A review by Schmidt et al., (2021) have outlined numerous co-benefits of biochar ranging from retaining soil moisture and nutrients, stimulating root growth and photosynthetic performance, increasing soil microbial biomass and nitrogen fixation, all good for improving soil quality and plant productivity, and significant for storing carbon. The other benefits of biochar use in agriculture practices have been reported in many literatures (Mohd Fauzie, et al., 2021; Selvarajh, et al., 2021). As biochar is mixed or amended to soil or used in planting media, carbon is returned to nature. The cycle of plants growing and then collecting its waste biomass, converting it to biochar, and returning it to earth removes CO2 from the atmosphere. So, producing and using biochar is a form of carbon removal approach. Biochar is a strong proponent for food security, key for increasing crop yield and agricultural productivity, global climate change and carbon sequestration agenda, and catalyst for emerging biochar application industry. These subtle properties became the motivation for developing and producing biochar-based value-added products for the market. The focus is towards producing biochar, biochar mixed planting media, and other derivative biochar-based products.

EMBARKING ON A BIOCHAR-THEMED SOCIAL ENTERPRISE PROJECT

As one of the higher education entities in the state and echoing the university for society narrative; projects for the local community revolve around knowledge & skills transfer, and capacity building. This meant bringing the academic outcome to the public for the benefit of all. However, the challenge is to identify tangible knowledge and skill sets that can be conveyed which are practical, will be of interest and benefit to the community. One that can be much more meaningful, have social sense and impact, able to grow and develop further over time, and self-sustaining in the long run. Among the areas of research and innovation interest in product development technology is the utilisation of agro waste materials and transforming them into biochar and value-added agro-products. This is also in line with the government's focus areas in biomass industry, green growth, and circular economy (Ministry of Economy, n.d.). Next, arises the need to identify commercially viable products that can be produced by the community and at the same time inculcating the culture of entrepreneurship.

The initial stepping stone was laid through the recently concluded UMK-MoF Social Enterprise (SE) 1.0 program, which is now succeeded by UMK-MoF SE 2.0 program. The on-going project targets select poor community in the locality of Kuala Balah, Jeli, Kelantan with the following objectives: (i) to increase the production capacity of biochar-derived products in a sustainable manner to meet current and new market needs; (ii) to improve the image of biochar-enriched crop planting media products

through branding and packaging towards certification requirements for more effective marketing; and (iii) to provide a starting point for work and business opportunities for local poor communities to generate new income. A brief profile of participants (P1-P5) enrolled in this program is given in Table 1. They consist of 3 females and 2 males from the poor category residing in the outskirts of Kuala Balah, Jeli, Kelantan.

Table 1: Brief participants' profile

Info	P1	P2	P3	P4	P5
Sex	F	F	F	M	M
Age (years)	60	46	37	51	50
Highest education	Std. 6	Std. 6	SPM	SRP	SPM
Main occupation	Rubber tapper	Rubber tapper	Housewife	Rubber tapper	Rubber tapper
Income	~RM150/ week	~RM130/ week	-	~RM100/ week	RM150/ week
Other occupation	-	-	-	Carpenter	Grass cutting
Income	-	-	-	~RM450/ mth	~RM80/ job

PROJECT JOURNEY TOWARDS INCLUSIVITY AND SUSTAINABILITY

It is utmost important to ensure active participation and engagement from the participants as they have no prior exposure to product development and social enterprise. One of the initial challenges faced were getting the idea of a cost effective and eco-friendly biomass conversion approach across to the participants. This ranges from initiating product development know-how, addressing issues of knowledge gap in awareness, aspects of ideation, financial, workflow management, demand creation and market viability (sales and marketing), among others. A series of workshop and knowledge & skills sharing sessions have been arranged to familiarise them to production workflow, including machinery operation. The participants are being trained in the areas of biomass material conversion including biochar, coco peat, and compost for product development. In addition, in this batch, the participants will be sourcing and preparing coco peat, coco fibre, rice husk char on their own. This requires the availability of coconut husk crusher and separator machine, and rice husk carbonization drum. This will reduce overall production cost per unit and also provide new product variety for sale.

Nevertheless, the potential of obtaining income from the project proved to be the main pull factor for the participants. The advantages of running the project this time around was the readily-available community workshop, product development roadmap, and the

presence of pioneer batch members (from UMK-MoF SE 1.0). For the time being, the participants get paid for all work performed at the workshop which includes soil preparation, product mixing, packaging, etc. This will be dependent on the number of product orders received. The creation of value and supply chain cover the up-scaling activities of biomass waste collection & conversion, raw material sourcing & preparation, media formulation processing, blending & production, packaging, marketing, sales, and distribution of various biomass-derived products (Figure 1). Further project journey happenings are as shown in Figure 2-4.

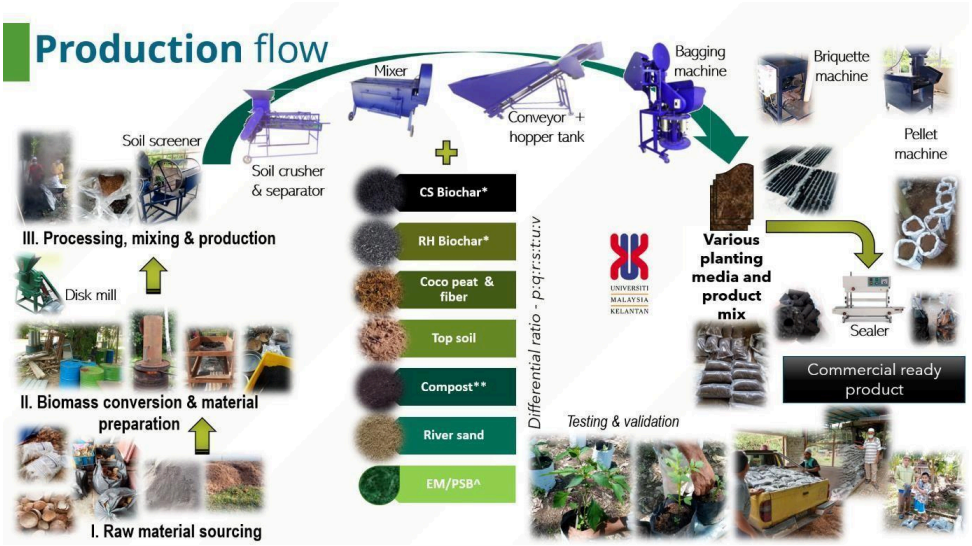

Figure 1: Production flow towards product development constituting knowledge & skills transfer and resource support for initial capacity building.

Figure 2: Work in progress based on product order basis.

Figure 3: Additional shading for feedstock keeping managed by the community themselves. From coconut shell to coconut husk, agro waste feedstock collected for product development rather than disposed of or subjected to open burning.

Figure 4: Receiving the latest equipment, a coconut husk shredding machine and welding set. This was followed by a commissioning and training session.

In order to have a structured organisation and exemplify the purpose to this community social enterprise initiative, a community co-operative going by the name of *Koperasi Komuniti Bioarang Jeli Berhad* (Jeli Biochar Community Cooperative Ltd) has been registered recently. The current participants have become members. This is hoped to expand the business and bring in more community members to take part in the related economic activities. This will directly and indirectly lead to generation and increase of income for the participants and community members. Moreover, the setting-up of the co- operative is seen to streamline entrepreneurial activity. The co-operative will oversee the up-scaling of product development process progression. The operational cost and capital expenditure are now borne by the co-operative. This is in line with one of the key economic activity areas stated in the National Co- operative Policy which is agriculture and agro-based industry (Malaysia Co-operative Societies Commission, n.d.). The community members have also undergone a good work guide and certification knowledge sharing session recently (Figure 5).

On 1st July 2023, the community co-operative was granted ISO9001:2015 certification under the scope for 'provision of production and packaging of the bio charcoal planting media'. This imparts the progress of the community project undertaken and as a recognition of the quality of product development. All of the biochar-based community products will be carrying the 'BiO@RG' branding and logo. This establishes a major milestone in terms of community commitment and achievement.

Figure 5: Community members involved in the work guide and certification knowledge sharing session.

Figure 6: Certification and initial products offering.

CHALLENGES AND THE NEED FOR COLLABORATIVE SUPPORT

From our viewpoint, inclusivity and sustainability must go hand in hand with socio-economic empowerment of the target community while working towards SDGs. In the context of this project, it is essential to ensure production capacity and community workshop operation are sustained and improved. This can be done through day-to-day operation management and continuous monitoring. We believe the community members now will themselves take the responsibility regarding the matter, albeit slowly but surely. Importantly, to make sure that the initiative is sustained and expanded so more community members can welcome and experience the benefit.

However, the one major hurdle we've identified is the barrier of entry into the commercial market that is dominated by major well established or mainstream industry players. Now as production capacity is increased, the market demand is vital for sales to occur by which income can be generated. This will require more intense and planned promotion, sales & marketing. This may become a bit challenging to them at this early stage. This was also a reason behind the establishment of the community co-operative, as a vehicle to address this issue. Immediate intervention through collaboration and support from various stakeholders such as departments and government agencies, CSOs, including APPGM, NGOs, and the private sector is most welcomed to reduce the barrier of market entry. Any formal or informal partnership will help facilitate the need. This can further encourage the use of community produced products for the domestic market. According to Bank Muamalat Malaysia Bhd's chief economist, Mohd Afzanizam Abdul Rashid, the onus is on Malaysia's domestic demand to keep the economy growing within the 4% to 5% range this year (Ganeshwaran, 2023).

MOVING FORWARD AND OPPORTUNITIES

Establishment of an organised community structure is critical to ensure that the early capacity building, and knowledge transfer program initiative can and will be sustained. As ownership is now with the community members, the responsibility is for them to safeguard its continuity and progress. This is also foreseen to attract more community members to partake towards the co-operative activity and functioning. This approach not only builds inclusive communities but empowers them to uphold SDGs in the process.

While walking through community inclusiveness, social innovation would develop in parallel with time. According to OECD (n.d.), social innovation implies the design and implementation of new solutions that spreads from conceptual, process, product, or organisational change, that ultimately intends to improve the welfare and wellbeing of individuals and communities. It is worthy to note that many initiatives undertaken by civil societies have proven to be innovative in dealing with social and environmental problems, while contributing to economic development. Definitely, building inclusive communities in achieving SDGs in Malaysia is a cross-cutting co-benefitting endeavour to be addressed holistically. As we have seen through this project, the social enterprise model adoption allows them to help themselves, and for them to help other community members in return, and guarantee the continuation flow of benefits. The project's success is expected to have a significant impact on the local community, providing sustainable livelihood opportunities, reducing and managing poverty, enhancing environmental sustainability, and promoting inclusive development in the constituency.

Biochar has been recognized as one of the climate beneficial carbon removal technologies, and to be followed by soil amendments (Nasdaq, n.d.). Co-production of

biochar and provision of carbon credits offer potential carbon offset opportunities. On the local front, Bursa Carbon Exchange (BCX), Malaysia's voluntary carbon market exchange is set up towards achieving net zero GHG emissions by 2050. To be a net zero nation, the need is to offset at least 76 million tCO2e each year. The first ever carbon credit auction took place on 16th March 2023. A total of 150,000 carbon credits (valued at around RM7.7 million) were purchased by local bidders including Petronas, Malayan Banking, CIMB Bank, Ambank, Press Metal, Telekom Malaysia, among others. However, the carbon credits procured were from Linshu Biogas Recovery and Power Generation Project from China that aligned with SDG 7, 8, and 13, and another project from Cambodia that provides additional social co-benefits, contributing to the livelihoods of local communities and biodiversity conservation (Bursa Malaysia, n.d.). To date there is no local carbon credits supplier on BCX for now. This is where CSOs, agencies, and certification bodies can play a facilitating role especially to community-based nature themed projects. The issues pertaining to carbon sequestration measurement difficulty through monitoring and verifying the permanence of carbon removal via biochar must be addressed accordingly. One way is to obtain carbon footprint certification by means of monitoring, verification, and reporting of processes, standards, and technologies practised. In the future, when the 1000 t/year biochar production capacity is attained, the community co-operative can explore for carbon credit certification and stands to gain economical return from the carbon market. The inclusion of biochar in planting media eventually used as soil amendments also provides an end use market for biochar. This can contribute to income generation for the community members and help sustain biochar production, product development, and facility operation.

CONCLUSION

All in all, the community project undertaking supports the building of more inclusive communities and achieving the SDGs in Malaysia by means of socio-economic upliftment to ensure that no one is left behind. In this on-going project, current work in progress is guided by the project objectives stated: (i) to increase the production capacity of biochar-derived products in a sustainable manner to meet current and new market needs; (ii) to improve the image of biochar-enriched crop planting media products through branding and packaging towards certification requirements for more effective marketing; and (iii) to provide a starting point for work and business opportunities for local poor communities to generate new income. Final output and performance indicator measures will be officially reported by January 2024.

In terms of inclusivity and sustainability, the project not only offers a cost-effective, practical, replicable, sustainable and profitable solution, but at the same time addresses issues of open dumping and burning of agro waste. This initiative will accommodate the empowerment of the lower bracket B40 income group (B1), as well as the poor, and

hardcore poor who can enhance their income sustainably. Importantly this is an active, continuous long-term self-empowering solution for the local community in Kuala Balah, Jeli, Kelantan.

The cross-cutting co-benefitting SDG areas in this project are SDG 1 (No poverty) by creating new and additional income opportunity for the community members (women included) and improve their economic well-being; SDG 2 (Zero hunger) through the indirect use of various planting media that improves crop and agriculture yield towards food security; SDG 8 (Decent work and economic growth) facilitated by new knowledge & skills transferred, with support of resources (machinery, equipment, tools, etc.), the setting up of community workshop and Community Co-operative support business development; SDG 12 (Responsible consumption and production) reflected through good resourcing practice of agro waste, use of raw agro waste materials as feedstocks, sustainable production, and implementation of quality management system (ISO 9001:2015) in the production; and SDG 13 (Climate action) resulting from reduced open dumping and burning of agro waste, lowering of CO2e emission, and as the production and use of biochar itself support carbon sequestration and storage for climate change mitigation.

ACKNOWLEDGEMENT

This project is being funded through UMK-MoF Social Enterprise Program 2.0 (InsPeK-ARG-00), with support from Institut Penyelidikan dan Pengurusan Kemiskinan (InsPeK), UMK. We also like to thank En. Nik Mohamad Zaid Nik Hassan from Koperasi Komuniti Bioarang Jeli Berhad (KKBJB), and all the well-wishers and contributors of the community project.

REFERENCES

Bursa Malaysia (n.d.). Bursa carbon exchange successfully completed Malaysia's inaugural carbon auction. https://bcx.bursamalaysia.com/web/auctiondetails

Department of Statistics, Malaysia (2023a). Pocket Stats Q1 2023 (pp. 103).

Department of Statistics, Malaysia (2023b). Poverty in Malaysia 2022. July, 2023. Department of Statistics, Malaysia, Putrajaya.

eKasih (2021, Jun 21). Portal pembasmian kemiskinan, soalan lazim. https://ekasih.icu.gov.my/Sokongan/Pages/SoalanLazim.aspx

Fadzil N.G., Dai-Viet, N.V., Zeinab, A.J. & Sannasi, P. (2022). Editorial: Towards a greener future - every little effort counts! *Chemical Engineering Technology*, 45(11), 1918.

Ganeshwaran, K. (2023, July 5). Muted outlook for second half. *The Star* https://www.thestar.com.my/business/business-news/2023/07/05/muted-outlook-for-second-half
https://cloud.stats.gov.my/index.php/s/NkO9QNMtQgn7Bz7#pdfviewer

International Organization for Standardization. (2018). Occupational health and safety management systems—Requirements with guidance for use (ISO Standard No. 45001:2018). https://www.iso.org/standard/63787.html

Malaysia Co-operative Societies Commission (n.d.). Official website of Malaysia Co-operative Societies Commission. Retrieved July 5, 2023, from https://www.skm.gov.my/index.php/en/

Ministry of Economy (n.d.). Twelfth Malaysia Plan, 2021-2025, FAQ. Retrieved July 5, 2023, from https://rmke12.epu.gov.my/en/information/faq/

Ministry of Finance (n.d.). Budget 2023: Membangun Malaysia MADANI, Appendix I - Touchpoints Budget 2023. Retrieved June 28, 2023, from https://budget.mof.gov.my/pdf/belanjawan2023/ucapan/touchpoint-budget-en.pdf

Mohd Fauzie, J., Lai, J.X., Ch'ng, H.Y., Sannasi, P., Noraida, M.R., Mohd Ashraf, Z.A. & Muhammad Firdaus, A.M. (2021). Effect of wood vinegar and rice husk biochar on soil properties and growth performances of immature kenaf (Hibiscus cannabinus) planted on BRIS soil. *Journal of Tropical Resources and Sustainable Science*, 9, 48-57.

Nasdaq (n.d.). Puro.earth: The World's Leading Carbon Removal Platform. Retrieved July 13, 2023, from https://www.nasdaq.com/solutions/carbon-removal-platform

OECD (n.d.). Social innovation. Retrieved July 12, 2023, from https://www.oecd.org/regional/leed/social-innovation.htm

Open DOSM(n.d.). Kawasanku. Retrieved June 28, 2023, from https://open.dosm.gov.my/kawasanku/kelantan/parlimen/p.030_jeli

Schmidt, H.P., Kammann, C., Hagemann, N., Leifeld, J., Bucheli, T.D., Monedero, M.A.S. & Cayuela, M.L. (2021). Biochar in Agriculture – A Systematic Review of 26 Global Meta-analyses. *GCB Bioenergy,* 13(11), 1708-30. https://doi.org/10.1111/gcbb.12889.

Selvarajh, G., Ch'ng, H.Y., Md Zain, N., Sannasi, P. & Mohammad Azmin, S.N.H. (2021). Improving soil nitrogen availability and rice growth performance on a tropical acid soil via mixture of rice husk and rice straw biochars. *Applied Sciences*, 11(108), https://dx.doi.org/ 10.3390/app11010108.

Statista (2022, October 5). *Poverty rate Malaysia 2020, by state*. https://www.statista.com/statistics/1196343/poverty-rate-by-state-malaysia/