

# Analysing Dominant Returns: Skill Development and Fulfilment in SDG Solution Projects in Eastern Malaysia

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## Abstract

Despite numerous solution funded by the All-Party Parliamentary Group on the Sustainable Development Goals (APPGM-SDG) in the Eastern regions of Malaysia, there is a lack of comprehensive understanding regarding the impact of different domains of Returns on Value (ROV) on beneficiaries, particularly within the context of TVET. The initiated solution projects often align with the objectives and principles of TVET, since they involve skills training, work-based learning, curriculum development, promotion of lifelong learning, community engagement, and alignment with SDG. The objective of this paper is to analyse the impact of the two predominant domains on beneficiaries and identifies the critical contributing factors. Using a mixed-method approach, this study categorizes sixteen solution projects from six different Parliamentary constituencies into two groups. The findings demonstrate that the domains of skill enhancement (“Clear”) and deep fulfilment (“Deep”) remain dominant in both groups, whether through self-reporting by solution providers, or through validation processes. Numerous pivotal elements have contributed to these dynamics, encompassing the local socio-economic backdrop, the locality, and the inherent characteristics of the APPGM-SDG initiatives. These findings also highlight the critical importance of integrating comprehensive skill development and fostering personal profound connection to achieve sustainable development, suggesting that future APPGM-SDG initiatives should continue to prioritize these elements to maximize their impact particularly in Malaysia’s Eastern zone.

## 1. Introduction

The focus of discourse on sustainable development extends beyond economic growth and climate action. The United Nations' Sustainable Development Goals (SDGs) guide initiatives aimed at addressing global challenges,

including social issues, as well as partnership and governance, through 17 dedicated goals by 2030. Malaysia, as a member of the United Nations, enthusiastically embraced the SDGs upon their adoption in 2015, recognising the importance of aligning national development priorities with the global sustainability agenda (Jayasooria, 2016; Yusof & Ariffin, 2020). With a commitment to inclusive and sustainable development, Malaysia pledged to integrate the SDGs into its policies, strategies, and programmes across various sectors, including education, healthcare, infrastructure, environmental conservation, and economic development.

One of the noteworthy initiatives aimed at localizing the SDGs at the parliamentary constituency level has been spearheaded by the All-Party Parliamentary Group Malaysia on the Sustainable Development Goals (APPGM-SDG). Formally registered in October 2019, this initiative prioritizes community engagement by implementing solution projects in selected parliamentary constituencies from all Members of Parliament, irrespective of party affiliation (Yusof & Sanusi, 2021). It involves four phases of implementation, namely i) mapping, ii) project design, iii) solution implementation, and iv) impact evaluation (Daud & Ramli, 2024). Through extensive ground research involving field visits (SVs) and focus group discussions (FGDs) conducted by the secretariat of APPGM-SDG, local issues and needs were identified (Phase 1), providing a framework for potential solution providers to develop projects addressing these concerns (Phase 2). The selected projects received funding with a maximum allocation of RM40,000 per term for execution (Phase 3). These projects aim to benefit targeted groups identified by the APPGM-SDG as being 'left behind'. For instance, this cohort, the category includes farmers, fishermen, youth, single parents, senior citizens, Orang Asli, B40, and many others. Towards the conclusion of the term, external impact evaluators (IE) are engaged to assess the outcomes in alignment with the Sustainable Development Goals (SDGs), denoting Phase 4. This four-phased approach is specifically designed by APPGM-SDG to serve as a platform for performance measurement in assessing the delivery of Malaysia's national development.

There has been a significant expansion in the number of parliamentary constituencies involved in these efforts over the years, accompanied by the proliferation of projects within these constituencies. The initial scope of this endeavour encompassed 10 parliamentary constituencies. By 2023, this number had expanded substantially, encompassing a total of 84 parliamentary constituencies. Concurrently, the number of solution projects implemented within these parliamentary areas has experienced remarkable growth. Beginning with 34 projects in total since the inception of the initiative in 2020 (cohort 1), the initiative witnessed a substantial increase in project numbers, reaching a total of 87 projects in 2021 (cohort 2), and 195 projects by 2022 (cohort 3).

Within the intricate landscape of localising the SDGs in Malaysia, this study focuses on projects in the Eastern region. This is because the authors of this article are involved in Phase 4, serving as external Impact Evaluators (IE) appointed by APPGM-SDG to assess the impacts of projects in this area, and this article draws upon the findings gleaned from those project reports and validations conducted as part of the evaluation process. The dissemination of knowledge through publication in academic journals aims to not only enhance the credibility and rigour of the evaluation process, but also to advance understanding and inform future research and policy decisions in the field of sustainable development. The Eastern region is among the seven regions engaged in providing solutions for cohort 3, and consists of two primary states, Kelantan and Terengganu. It is noteworthy that Terengganu commenced its participation in this endeavour relatively recently, in 2022. Despite its recent involvement, Terengganu has contributed three representative projects, underscoring its commitment to the initiative and its potential to make meaningful contributions to the attainment of its objectives.

The initiated solution projects often align with the objectives and principles of Technical and Vocational Education and Training (TVET). TVET is designed to develop competent human resources equipped with technical and vocational expertise for the job market, aiming to build learners, both student and adult, competency by providing essential skills, knowledge, and work ethic needed across various industries (Salleh & Sulaiman, 2015). In the context of community-based projects, solution providers can leverage the TVET framework to address personal and community needs for work and life. These projects typically involve skills training, work-based learning, curriculum development, promotion of lifelong learning, community engagement, and alignment with the Sustainable Development Goals (SDGs). The outcomes of these projects are deeply intertwined with TVET through the development of self-efficacy, confidence, resilience, a sense of purpose, empowerment, social connection, and creativity.

Overall, the Eastern region represents dynamic arenas where the convergence of skill development and deep fulfilment unfolds. Skills ("Clear") and depth of being ("Deep") stand out as the most prominent among the six focal points meticulously examined in assessing the Return on Values (ROV) derived from project impacts. Other observed dimensions include networking ("Wide"), system ("High"), alignment with SDGs, and considerations of gender. Each dimension offers a comprehensive framework for assessing the efficacy and longevity of project outcomes. Moreover, they play a crucial role in guaranteeing that projects not only yield positive impacts but also cultivate inclusivity, resilience, and alignment with overarching sustainable development objectives. Therefore, the primary objective of this article is to offer scholarly insights into these two most significant and impactful domains, as experienced by beneficiaries, and to identify the key contributing factors.

## 2. The Interplay of Skill Development, Fulfilment, and Leadership in Social Community Projects

Pertinent to the introduction, this section will revisit the literature to elicit the imperatives of the intricate interplay between skill development and deep fulfilment in SDG initiatives within the Eastern region projects, mainly the Kelantan and Terengganu constituencies. Based on that corpus, there are three thematic themes that are vital to this article. The first theme is addressing the deep fulfilment and beneficiary engagement in social community projects (Dwivedi et al., 2024; Kuo & Feng, 2013; Olusa, 2021; Parthiban et al., 2024). The second theme covers the importance of skill development and empowerment through educational programs (Mansuri & Rao, 2004; Moreno et al., 2017; Silva-Laya et al., 2020; Wong & Guggenheim, 2018). Finally, the third theme will undertake the position to discourse on the role of leadership and institutional support in the APPGM-SDG social community project (Puteh & Wan, 2023; Salleh et al., 2023b; Rahman et al., 2023a; Rahman et al., 2023b; Syahirah et al., 2023; Hasan et al., 2023). Each theme will be synthesized to show the connectivity and complexity of the deep fulfilment and skill development. The synthesis will lead to premises to prove that the issues brought in this article are substantively dynamic to be explored on appropriate policy space and intervention recommendation.

### 2.1 Deep fulfilment and Beneficiary Engagement

Several studies have highlighted the importance of deep fulfilment and beneficiary engagement in social community projects. Deep fulfilment can be described as a comprehensive state of satisfaction that encompasses deep thankfulness, emotions, confidence, relationships, and bonds. The engagement of beneficiaries in social community projects plays a crucial role in ensuring the success and sustainability of such initiatives. Furthermore, the cultivation of deep fulfilment among the beneficiaries and other stakeholders is essential to fostering a supportive and cohesive community environment (Olusa, 2021).

In other words, deep fulfilment and beneficiary engagement are important in social community projects (Shuhidan et al., 2023). Therefore, it is essential to consider the potential drawbacks associated with these factors (Kuo & Feng, 2013). Some critics argue that excessive focus on soulfulness may lead to unrealistic expectations and a lack of critical thinking within the community (Dwivedi et al., 2024). Moreover, overly high levels of beneficiary engagement might result in inefficient decision-making processes and delays in project implementation. Additionally, there is concern that excessive beneficiary engagement could lead to dependency on external support rather than local empowerment and self-sufficiency (Parthiban et al., 2024). It is crucial to carefully balance deep fulfilment and beneficiary engagement with a realistic and sustainable approach to ensure the long-term success of social community projects. In synthesis, the cultivation of deep fulfilment and beneficiary engagement is crucial for the success of social community projects in Kelantan and Terengganu, and are thus essential to strike a balance to avoid potential drawbacks.

Achieving a balance between fostering deep fulfilment and ensuring realistic expectations, critical thinking, and local empowerment is imperative. Moving forward, it is important for solution providers in the Eastern region and community leaders to consider these findings and implement strategies that foster a supportive and cohesive community environment, while maintaining a realistic and sustainable approach.

### 2.2 Skill Development and Empowerment Through Educational Programs

The second thematic theme in this article focuses on the importance of skill development and empowerment through educational programs in social community projects. Previous research has highlighted the significant role that education plays in empowering individuals and communities, by providing them with knowledge, skills, and opportunities for personal and professional growth. These studies have shown that educational programs within social community projects can enhance the participants' skills in various areas such as entrepreneurship, financial literacy, leadership, and project management (Mansuri & Rao, 2004; Khalid et al., 2017). Furthermore, skill development programs have been found to contribute to the long-term sustainability of social community projects by equipping community members with the necessary tools and competencies to take ownership and actively participate in project activities. Moreover, educational programs have been shown to increase the self-esteem and self-confidence of participants, empowering them to become agents of change in their communities and take on leadership roles (Wong & Guggenheim, 2018). Incorporating educational programs as part of social community projects in Kelantan and Terengganu will thus have a transformative impact on the participants' lives by providing them with the skills, knowledge, and resources needed to improve their livelihoods and contribute to community development. Moreover, research has emphasized the importance of tailoring educational programs to the specific needs and context of the community, taking into consideration their cultural values, socio-economic conditions, and available resources.

For instance, skill development and educational programs are often emphasized as crucial elements in social community projects. It is therefore important to consider the potential limitations associated with these endeavours. Critics have argued that an overemphasis on skill development through educational programs may

create a narrow focus on individual capacity building, at the expense of broader systemic change within the community (Moreno et al., 2017). In some cases, this approach may inadvertently reinforce existing power dynamics and inequalities, as only a select few individuals benefit from the opportunities presented by educational programs, leading to a potential lack of inclusivity and equal access to resources. Furthermore, reliance on educational programs as the primary driver of empowerment may overlook the complex socioeconomic and structural barriers that individuals and communities face (Silva-Laya et al., 2020). This narrow focus on skill development could inadvertently neglect to address systemic issues that contribute to marginalization and limited opportunities for certain groups within the community. Meanwhile, as skill development and educational programs undoubtedly offer valuable benefits, it is crucial to adopt a holistic approach that addresses both individual empowerment and systemic change, in order to create comprehensive and sustainable improvements within social community projects. Achieving a balance between individual skill development and addressing broader social and structural challenges will be essential in realizing lasting and equitable empowerment within the Eastern region.

### 2.3 The Role of Leadership and Institutional Support

The success of social community projects relies not only on the participation and engagement of beneficiaries but also on strong leadership and institutional support (Rahman et al., 2023a). Research has highlighted the importance of effective leadership and institutional support in driving positive change within social community projects (Mansuri & Rao, 2004). It is crucial for community leaders to be accountable and responsive to the needs and interests of the beneficiaries, rather than implementing projects based on their agendas (Salleh et al., 2023b; 2023; Rahman et al., 2023a). Furthermore, an enabling institutional environment that promotes upward commitment and downward accountability is vital for the sustainability of community development initiatives (Wong & Guggenheim, 2018). The literature also emphasizes the role of external agents, such as facilitators and project implementers, in influencing the success of social community projects. These external agents should be well-trained and experienced, in order to ensure effective project design and implementation (Nangoli et al., 2013). Finally, it is important to recognize the limitations and potential pitfalls of community-based development initiatives.

Critics of heavy reliance on leadership and institutional support in social community projects argue that these may foster a dependence on external figures and organizations, rather than promoting grassroots leadership and self-governance within the community (Puteh & Wan, 2023). Placing too much emphasis on external leadership and institutional support risks disempowering local community members and undermining their ability to take ownership of the initiatives that directly impact their lives (Abatena, 1997). This top-down approach may lead to a lack of inclusive decision-making processes and limit the representation of diverse voices within the community. Additionally, the influence of external agents, while important, may inadvertently perpetuate power dynamics that prioritize the interests of these agents over the genuine needs and aspirations of the community members. The presence of external facilitators and project implementers may introduce biases and agendas that do not align with the organic development and priorities of the community, potentially leading to the imposition of solutions that do not authentically address local challenges and opportunities (Syahirah et al., 2023).

Furthermore, an overreliance on enabling institutional environments may neglect underlying complexities and the historical context of community dynamics. Genuine community-driven change requires a deep understanding of the unique social, cultural, and political factors that shape the community's identity and aspirations. By solely focusing on institutional support, there is a risk of overlooking the need for genuine, grassroots leadership and self-determination within the community. In summary, while leadership and institutional support are crucial elements in social community projects, it is important to approach them with caution and a critical lens. Balancing external leadership with grassroots empowerment and promoting inclusive, community-driven decision-making processes is imperative for the long-term sustainability and success of initiatives in Kelantan and Terengganu. Moving forward, it is also essential for project managers and community leaders to critically evaluate the balance of external support and community agency in driving positive change within social community projects.

## 3. Methodology

This study employed the mixed method design for data collection, integrating both quantitative and qualitative methods to provide a comprehensive evaluation of the Return on Values (ROV) of the APPGM-SDG solution projects according to the six main dimensions, such as i) "Deep" (Personal, Feelings, Confidence), ii) "Clear" (New Knowledge, Skills), iii) "Wide" (Networks, New Contacts), iv) "High" (System, SOP, Documented Process), v) "SDG" (Apparent SDGs Targets and/or Indicators), and vi) "Gender" (Gender Awareness). A mix-method was chosen to leverage the strengths of both quantitative and qualitative data. It is particularly well-suited for exploring complex phenomena, as it provides an in-depth understanding of participants' perspectives while also enabling statistical validation and generalisation of findings (Clark et al., 2021).

The project's impact assessment was conducted through various methods, including: i) Document Analysis (DA); ii) Site Visit (SV), and iii) Focus Group Discussion (FGD). The research process began with DAs to obtain an overall understanding and categorise the solution projects into three categories: i) successful projects, ii) questionable projects, and iii) delayed projects. Following this initial categorization, the study progressed with SVs and FGDs to further refine and validate a selected 30% of the total projects, ensuring representation from each of those categories. Selection also considered geographical proximity, ensuring that projects were not too distant from one another within each zone to facilitate mobility during the short timeframe of fieldwork. The selection percentage aligned with the guideline set by APPGM-SDG, taking into account limited timeframes and funding resources (Daud & Ramli, 2024).

In relation to the DAs, the documents used for evaluation purposes mainly consist of i) Project Proposal; ii) Monthly Reports; and iii) Final Report. In addition to these key documents, the evaluation process also incorporated the photos and videos attached by the solution provider in the reports. Evaluators thoroughly reviewed all these materials to assess the project's progress and to compare the stated objectives with the actual outcomes. This marks the initial stage of impact identification, where both written and visual forms served as references for the subsequent stages of verification and validation.

During the SVs, evaluators conducted direct non-participant observations of project progress and engaged in conversations with solution providers, participants, and local residents to gather their perspectives on how the projects have benefited or affected them. By immersing ourselves in the project's setting, evaluators were able to gain insights into local dynamics, challenges, and opportunities that may not be adequately captured in their written reports.

On the other hand, FGDs were conducted with two to three representatives of beneficiaries, accompanied by their solution providers, in the same session. While informal conversations had been held separately during SVs, our FGDs format was designed to ensure transparency and facilitate direct, two-way communication between both parties. By bringing them together, we aimed to encourage open dialogue, address any discrepancies in perspectives, and gather comprehensive feedback on the project's impact and challenges. The session questions were structured around themes related to ROV, addressing challenges encountered, concerns raised, and expectations.

Regarding the presentation of data, a quantitative approach served as the foundation for scoring across all data collection methods. For projects evaluated solely through DAs, scores were directly assigned using the ROV rubric provided by APPGM-SDG, with a range from 1 to 5. In contrast, for projects involving SVs and FGDs, scores were integrated with qualitative observations and discussions, guided by the same rubric. This integration provided rich, contextualised insights into participants' experiences and perceptions, not only enhancing the quantitative scores by converting qualitative data into numerical form (Stanley, 2019) but also offering robust evidence to amplify participants' voices in the analysis.

In terms of sampling, a total of 16 APPGM-SDG solution projects were selected across two states, covering six Parliamentary constituencies. These projects, implemented between 2023 and 2024, received funding from the APPGM-SDG at various stages, with most being part of Phase 1 and a few included in Phase 2. The complete list of solution projects and their evaluation methods is detailed in Table 1:

Fieldwork activities for SVs and FGDs were conducted from the 23rd to the 26th of January 2024, spanning two days in Kelantan and two days in Terengganu. Initially, six projects were identified for SVs; however, due to discrepancies in the report, only five projects were ultimately visited. These projects included Y22-SP171 (Kuala Krai, Kelantan), Y22-SP114 (Jeli, Kelantan), Y22-SP155 (Setiu, Terengganu), Y22-SP101 (Setiu, Terengganu), and Y22-SP116 (Batu Rakit, Terengganu). The FGDs were held in each state, with Kelantan's discussions taking place on 24th January 2024 and Terengganu's on 27th January 2024. In Kelantan, the FGDs encompassed projects Y22-SP057 (Tumpat, Kelantan), Y22-SP111 (Gua Musang, Kelantan), and Y22-SP114 (Jeli, Kelantan). Meanwhile, in Terengganu, the FGD included projects Y22-SP101 (Setiu, Terengganu) and Y22-SP116 (Setiu, Terengganu). The FGDs proceeded as scheduled with smooth execution. All expected participants, including a selection of beneficiaries and solution providers for each project, attended at their designated location. Refreshments were provided during all sessions, along with a nominal allowance for each project, covering transportation costs and compensation as outlined in the budget.

**Table 1** List of APPGM-SDG solution projects in eastern region for cohort 3

Project Code	Project Name	State	Evaluation Method
Y22-SP101	Green Fertigation Entrepreneur Model (MUHiF)	Setiu, Terengganu	DA, FGD, SV
Y22-SP111	Vegetable Fertigation Cultivation Projects	Gua Musang, Kelantan	DA
Y22-SP116	Empowering Single Mothers Through Skills and Digital Marketing Knowledge	Setiu, Terengganu	DA, FGD, SV

Y22-SP120	Building the Economy for Persons with Disabilities (OKU)	Kuala Krai, Gua Musang, Kelantan	DA
Y22-SP124	Planting Cucumber Using Fertigation System	Gua Musang, Kelantan	DA, FGD, SV
Y22-SP126	Economic Empowerment of Young Single Mothers	Gua Musang, Kelantan	DA
Y22- SP145	Transfer of Knowledge of Farming for Orang Asli Communities	Gua Musang, Kelantan	DA
Y22-SP155	Village Chicken Farming	Setiu, Terengganu	DA, SV
Y22-SP171	Mushroom By-Products - Kuala Krai	Kuala Krai, Kelantan	DA, SV
Y22-SP028	Digital Marketing and Financial Management	Pasir Mas, Kelantan	DA
Y22-SP052	Agro-Entrepreneurship for Youth in Pasir Pekan Phase 2	Tumpat, Kelantan	DA
Y22-SP057	Cocopeat	Tumpat, Kelantan	DA, FGD
Y22-SP063	Ironwork Mentor Mentee	Pasir Mas, Kelantan	DA
Y22-SP072	Sales Kiosk Setup	Tumpat, Kelantan	DA
Y22-SP114	The Sustainable Oyster Mushroom Farming among youth and housewives of indigenous people at Sg. Rual, Jeli, Kelantan.	Jeli, Kelantan	DA, FGD, SV
Y22-SP183	Growing Large Green Chilies	Kuala Krai, Kelantan	DA

**Total (16 Projects)**

**DA: 16; FGD: 5; SV: 5**

Note: DA=Document Analysis; FGD=Focus Group Discussion; SV=Site Visit

#### 4. Findings and Discussion

Before delving into the detailed analysis of the specific dominant ROVs, it is essential to highlight that the key findings from the data reveal that APPGM-SDG solution projects exhibit characteristics akin to those of TVET. Most solution providers incorporate experiential learning, adaptive approach, and collaboratively develop solutions tailored to the interests and needs of the community. These projects play a significant role in equipping individuals with practical skills and knowledge relevant to various industries, reflecting the essential attributes of TVET. When analysing these types of projects, it is essential to adhere to a rigorous TVET framework in reporting, which involves ensuring both reliability and validity (Salleh, Sulaiman, & Gloeckner, 2023a). To establish trustworthiness, the researchers rigorously examined and verified all findings and data. This blended approach, combining quantitative evaluations with qualitative insights, ensured a thorough and reliable assessment of the ROV for the projects.

The range of mean values is interpreted on a scale of 1 to 5. Mean values between 1.0 and 2.4 are categorized as low, those from 2.5 to 3.4 are considered moderate, and values between 3.5 and 5.0 indicate a high level of impact. This interpretation framework is derived from the research of Oxford & Burry-Stock (1995). Overall, the aggregated mean scores for all solution projects within the Eastern group are summarized in Table 2, highlighting “Clear” and “Deep” as the two most significant outcomes.

**Table 2** Mean score of ROV for all APPGM-SDG solution projects in eastern Malaysia

Project Code	Project Name	Deep	Clear	Wide	High	SDG	Gender
Y22-SP101	Green Fertigation Entrepreneur Model (MUHiF)	5	5	4	5	2.5	4
Y22-SP111	Vegetable Fertigation Cultivation Projects	3	4	3	3	2	2
Y22-SP116	Empowering Single Mothers Through Skills and Digital Marketing Knowledge	3	3	3	2	1	4
Y22-SP120	Building the Economy for Persons with Disabilities (OKU)	4	4	2	4	3.5	3.5
Y22-SP124	Planting Cucumber Using Fertigation System	2	2	2	2	3	3

Y22-SP126	Economic Empowerment of Young Single Mothers	1	1	1	1	1	1
Y22-SP145	Transfer of Knowledge of Farming for Orang Asli Communities	1	1	1	1	1	1
Y22-SP155	Village Chicken Farming	4	4	3	3	1	2
Y22-SP171	Mushroom By-Products - Kuala Krai	4	4	4	4	2	3
Y22-SP028	Digital Marketing and Financial Management	5	5	4	2	3	3
Y22-SP052	Agro-Entrepreneurship for Youth in Pasir Pekan Phase 2	4	5	3	2.5	2	1
Y22-SP057	Cocopeat	4	4	3	4	3	3
Y22-SP063	Ironwork Mentor Mentee	4	4	2	2.5	1.5	2
Y22-SP072	Sales Kiosk Setup	3.5	3	2	1	2.5	2.5
Y22-SP114	The Sustainable Oyster Mushroom Farming among youth and housewives of indigenous people at Sg. Rual, Jeli, Kelantan.	2	5	2	2	2.5	1
Y22-SP183	Growing Large Green Chilies	2	2	2	2	2	1
Total Score		51.5	56	41	41	33.5	37
<b>Mean Score</b>		<b>3.22</b>	<b>3.50</b>	<b>2.56</b>	<b>2.56</b>	<b>2.09</b>	<b>2.31</b>
Mean Interpretation		Mode rate	High	Mode rate	Mode rate	Low	Low

#### 4.1 Unlocking Values from Project Reports

Out of the 70% of projects that were not subject to validation (i.e., 9 projects), two projects, Y22-SP126 and Y22-SP145, could not be assessed for their ROV due to missing reports, resulting in a default score of 1 for each dimension. Consequently, only seven projects—Y22-SP120, Y22-SP124, Y22-SP028, Y22-SP052, Y22-SP063, Y22-SP071, and Y22-SP183—were evaluated exclusively based on their reports for impact assessment. By analysing the reported outcomes and insights offered by the solution providers, we seek to gain an understanding of what they perceived as achievements and impactful. The findings are as demonstrated in Table 3 below:

**Table 3** Mean score of ROV based on document review analysis

No	Project Code	Project Name	Deep	Clear	Wide	High	SDG	Gender
1	Y22-SP120	Economy for Persons with Disabilities (OKU)	4	4	2	4	3.5	3.5
2	Y22-SP124	Planting Cucumber Using Fertigation System	2	2	2	2	3	3
3	Y22-SP028	Digital Marketing and Financial Management	5	5	4	2	3	3
4	Y22-SP052	Agro-Entrepreneurship for Youth in Pasir Pekan Phase 2	4	5	3	2.5	2	1
5	Y22-SP063	Ironwork Mentor Mentee	4	4	2	2.5	1.5	2
6	Y22-SP072	Sales Kiosk Setup	3.5	3	2	1	2.5	2.5
7	Y22-SP183	Growing Large Green Chilies	2	2	2	2	2	1
Total Score			24.5	25	17	16	17.5	16
<b>Mean Score</b>			<b>3.5</b>	<b>3.57</b>	<b>2.43</b>	<b>2.29</b>	<b>2.5</b>	<b>2.29</b>

Mean Interpretation	High	High	Moderate	Low	Moderate	Low
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The reports indicate that the projects place significant value on acquiring new skills (“Clear”) and profound connection (“Deep”), with both aspects scoring around 25 out of 35 points, or approximately 71%. The mean ROV score is 3.5 and above, indicating a high level of impact across both dimensions. Collectively, these factors contribute to 23% of the total ROV.

While the majority of the content in the reports has been provided by the solution providers, testimonies and photographs also served as compelling evidence of achievements and project impacts. By capturing moments of interaction, participation, and emotional connection, these photographs complement the narrative in the reports, offering a holistic view of the project’s outcomes. Thus, testimonies and photos played a crucial role in substantiating the impact across various domains, particularly where effects were visually manifested, such as emotions (“Deep”) and skills (“Clear”).

“Clear” pertains to the skills demonstrated that contribute to enhancing productivity and augmenting the revenue of participants. Among the seven projects assessed, two projects, namely Y22-SP028 and Y22-SP052, attained a flawless score of five in the “Clear” domain. In the case of Y22-SP028, which focused on digital marketing and financial management, beneficiaries exhibited an improvement in their comprehension of cash flow management through the effective utilization of the provided application. Furthermore, as an integral component of the provided training, numerous beneficiaries effectively utilized social media channels to expand their business networks by sharing engaging content and conducting live sessions. A participant’s feedback underscores this achievement: *“I am very happy to have learned how to use social media to enhance outreach to customers and improve sales results better than before”* (SP028, Final Report December 2022). Conversely, for Y22-SP052, which centred on livestock farming, participants demonstrated proficiency in various aspects including the butchering, skinning, and preparation of goat and sheep meat, as outlined in their final report.

The second highest domain of ROV is “Deep”. Five out of seven reviewed documents received a minimum score of 3.5 in the “Deep” domain. “Deep” refers to the domain related to the personal or individual beneficiary impact of the undertaken project. This encompasses changes in self-belief, willingness to change, readiness to take risks, eagerness to learn new things, and a sense of contentment with acquired knowledge or skills. One of the projects that received a high score is Y22-SP120, achieving a score of 4. This project is centred on income generation within the OKU (Orang Kurang Upaya) community in Kuala Krai. Testimonials from this project prominently feature expressions of gratitude, with phrases such as “thank you” and “generating income” being frequently mentioned. One participant expressed, *“Thank you for assigning me the Serati duck farming project. I am genuinely excited about this opportunity; at least there’s an activity I can focus on”* (Y22-SP120 Beneficiary 03, Final Report September 2023). Another noteworthy example is Project SP063, which also achieved a score of 4. This project focused on imparting knowledge related to crafting weapons such as knives and *keris* (traditional daggers), eliciting positive feedback from participants. Six participants expressed their gratitude and eagerness, as they successfully produced their own products, with some even establishing their own workshops. As highlighted by the solution provider in the report, *“Participants are satisfied with what Mr. Arif taught them, because they received instruction in various crucial aspects of producing quality weapons”* (Y22-SP063, Final Report, February 2023).

Accompanying these textual testimonials are photographs capturing the beneficiaries’ smiling faces, often in proximity to the products they have cultivated, such as poultry farms and mushroom farms, showcasing their entrepreneurial endeavours. Having said that, within the limitations of the nature of DAs, the use of visuals and testimony alone may have the potential to introduce bias due to the absolute control exercised over the selection and presentation. This could potentially lead to the implementation of validation by APPGM-SDG to mitigate such biases and ensure the credibility and reliability of the findings.

## 4.2 Amplifying Voices Through SVs and FGDs

The objective of this section is to achieve a more comprehensive understanding of the effectiveness and outcomes of the involved projects by validating them through the FGDs and SVs. It is important to note that the solution projects assessed in this section included a mix of three categories: questionable, delayed, and outstanding. The validation involved various stakeholders, such as beneficiaries, solution providers and local communities. As such, any unclear aspects of the reports or unmentioned details were being clarified through these FGDs and SVs, while also providing a direct representation of the participants’ voices.

**Table 4** Mean score of ROV for based on cross-validation

No	Project Code	Project Name	Deep	Clear	Wide	High	SDG	Gender
1	Y22-SP101	Green Fertigation Entrepreneur Model (MUHiF)	5	5	4	5	2.5	4
2	Y22-SP111	Fruit Vegetable Fertigation Farming Project	3	4	3	3	2	2
3	Y22-SP116	Empowering Single Mothers Through Digital Marketing Skills and Knowledge	3	3	3	2	1	4
4	Y22-SP057	Cocopeat	4	4	3	4	3	3
5	Y22-SP114	The Sustainable Oyster Mushroom Farming among youth and housewives of indigenous people at Sg. Rual, Jeli, Kelantan.	2	5	2	2	2.5	1
		<b>Total Score</b>	17	21	15	16	11	14
		<b>Mean Score</b>	<b>3.4</b>	<b>4.2</b>	<b>3.0</b>	<b>3.2</b>	<b>2.2</b>	<b>2.8</b>
		Mean Interpretation	Moderate	High	Moderate	Moderate	Low	Moderate

Despite incorporating this additional evaluation methods, the “Clear” and “Deep” domains still emerged as the highest achievements for the selected solution projects. The “Clear” domain scored 21 points with a high-impact mean of 4.2, securing the top position. The “Deep” domain followed closely with a score of 17 and a moderate mean of 3.4, ranking as the second-highest accomplishment (see Table 4). Additionally, a significant contrast was observed between the findings from DAs and FGDs & SVs regarding the “SDG” and “High” dimensions. However, it is pertinent to note that these selected projects for validation did not undergo separate DAs. The prescribed format stipulated by the APPGM-SDG mandates a singular evaluation process. Consequently, the chosen projects in this category were directly assessed through a combination of DAs, site visits, and FGDs.

“Clear” stands out as the sole classification marked as high when juxtaposed with the other five domains. Notably, the skills acquired encompass a diverse range, including but not limited to entrepreneurship, fertigation, mushroom cultivation, digital proficiency, adeptness in social media, mastery of systems and procedures, problem-solving prowess, exploration of alternative options, and effective teamwork. For example, in Project Y22-SP114, which scored a perfect 5.0, our on-site observation demonstrated that beneficiaries learned three main new skills related to the preparation of mushroom grow bags: i) bag preparation (mixture technique), ii) quality inspection from bacteria (problem solving), and iii) cultivation. Importantly, the knowledge and skills acquired align directly with the specific tasks assigned to each beneficiary within the project. Despite the varying levels, they expressed enthusiasm for learning something new, as one participant stated in FGD session, “*We gained a lot of valuable knowledge here, such as how to fill seeds and eliminate bacterial infections on mushroom bags, how to manage the growth process, and even how to optimize our production techniques. [...] These skills have not only helped us improve the quality of our crops but have also given us a better understanding of sustainable farming practices*” (Participant 07, FGD01, 23 years old).

The “Deep” dimension achieved a solid mean score of 3.4, ranking second overall and falling just 0.1 points short of the high-impact threshold. Findings from FGDs and observations of these selected five projects revealed that beneficiaries deeply appreciated the initiatives, which significantly boosted their confidence, self-awareness, trust in themselves and others, satisfaction, and sense of empowerment. A standout example is the Y22-SP101 project, which scored 5.0 in this domain. Beneficiaries praised the project for addressing flooding and introducing hanging fertigation techniques as a solution. During the site visit and FGD session, participants spoke highly of their SPs and the project, expressing openness to learning new techniques and trust in the guidance provided. They transitioned from planting watermelons to cultivating cucumbers, demonstrating their ability to adapt and apply the lessons learned from the project to new agricultural practices. Their comfort and trust were further reinforced by the respect and understanding shown by the SPs, as one participant noted: “*This is new knowledge for us, learning about hanging fertigation, so we learned a lot [...] but when it comes to matters related to our expertise [nutrition or pest control], they listen to our opinions and advice. That's what I like and what makes me feel comfortable and included*” (Participant 11, FGD02, 51 years old).

When comparing numeric scores from solely document reviews to those validated through site visits and FGDs, the “Deep” dimension received slightly lower scores in the latter assessments. This indicates that reports tend to highlight successful outcomes and positive impacts selectively, whereas face-to-face interactions offer a richer and more nuanced perspective from participants, including challenges and unmet expectations that are often obscured in documentary evidence. Conversely, the “Clear” dimension scored significantly higher in FGDs and site visits, as these direct interactions and observations allowed participants to effectively demonstrate and discuss the skills they had acquired—insights that might be underrepresented or inadequately emphasized in written reports.

### 4.3 The Key Factors

In this study, the primary factors contributing to the prominence of skill development (“Clear”) and fulfilment (“Deep”) can be summarized as follows:

- **The dominance of “Clear”:** The multifaceted nature of APPGM-SDG solution projects, designed based on TVET principles, demands a diverse skill set, providing beneficiaries with a broad range of learning opportunities. Whether it is through marketing, leadership, technical training, or production, individuals develop both hard and soft skills. The hands-on experience, combined with training sessions and workshops, ensures that participants acquire practical, applicable skills that enhance their personal and professional growth. Geographical settings also wield significant influence, given that many projects concentrate on harnessing the resources inherent to specific locales.
- **The secondary dominance of “Deep”:** The solution projects approved by APPGM-SDG often focus on fostering a sense of community through collaborative projects and initiatives. These programs encourage participants to work together towards common goals, which enhances their sense of belonging, collective identity, and personal growth to both the community and the project. In addition to SPs and APPGM-SDG valuing and celebrating participant feedback and opinions, beneficiaries were frequently entrusted with responsibilities and given opportunities to lead specific tasks. This approach significantly enhances beneficiaries’ confidence and reinforces the importance of their voices being heard. Lastly, these initiatives frequently operate in challenging areas, such as rural regions in Kelantan and Terengganu, underscoring disparities in living conditions and opportunities. The opportunities have instilled a deep sense of gratitude among participants and a realization of their ability to leverage local resources around them. Such empowerment cultivates resilience and enhances participant ability to overcome challenges, thereby leading to an increased sense of fulfilment.

## 5. Conclusion

The analysis of APPGM-SDG Eastern solution projects’ impacts has revealed a notable transition from superficial to substantial effects, characterized by the dual dominance of skill development (“Clear”) and deep fulfilment (“Deep”). Through a meticulous examination from DAs, FGDs, and SVs involving various stakeholders’ perspectives, including beneficiaries, solution providers, and community members, it becomes evident that the beneficiaries have not only experienced enhancements in their emotional depth, resulting in heightened trust, stronger bonds, increased confidence, and gratitude for these opportunities, but they have also demonstrated significant improvements in tangible skill development, particularly in areas related to entrepreneurship, marketing, and the utilization of social media. Several factors contribute to these dominances, primarily rooted in the nature of the APPGM-SDG framework and the local context, empowering beneficiaries, fostering resilience throughout the process, and yielding significant outcomes. This dual dominance underscores the holistic nature of sustainable development initiatives, emphasizing the importance of addressing both emotional and practical needs aligned with TVET principles to achieve meaningful and lasting impact. As we move forward, it is imperative to build upon these insights, in order to further enhance the effectiveness and sustainability of SDG projects. This will ensure that they continue to catalyse transformative change and contribute to the advancement of global development goals.

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## Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

## Author Contribution

The authors confirm contribution to the paper as follows: **study conception and design:** Nik Hasif; **data collection:** Nik Hasif, Muhamad Azwan Abd Rahman, Muhammad Rahimi Hasan, Norfatiha Othman Norhana Khaled & Azlizan Talib; **analysis and interpretation of results:** Nik Hasif, Muhamad Azwan Abd Rahman, Muhammad Rahimi Hasan, Norfatiha Othman Norhana Khaled & Azlizan Talib; **draft manuscript preparation:** Nik Hasif, Muhamad Azwan Abd Rahman, Muhammad Rahimi Hasan, Norfatiha Othman Norhana Khaled & Azlizan Talib. All authors reviewed the results and approved the final version of the manuscript.

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