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Social Return on Investment (SROI) for government flood recovery project in Kuala Krai, Kelantan

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Abstract. In Malaysia, almost everyone agrees that flood recovery projects are perceived to improve the lives of communities and generate social impacts. However, there is insufficient evidence to support the case and there hasn't been any common agreement about what that return is, or how it might be measured. In this regard, Social Return on Investment (SROI) has the ability to present a clear and concise message about the government's project impacts by assessing social, economic and environmental values. Using the analysis of a specific case study as a guiding thread, this paper shows how the application of SROI methodology allows one to know in depth the social added value that the project brings and the changes experienced by the key stakeholders that interact with it. The authors carried out a step-by-step guide to implementing SROI on the government flood recovery project named "New Permanent Housing" (*Rumah Kekal Baharu*) RKB project in Kg. Telekong, Kuala Krai, Kelantan. This analysis assesses the social value generated by the intervention by combining the use of qualitative and quantitative data gathered and analyzing it. The results show that the RKB project in Kg. Telekong created an SROI ratio of 1:1.27. This means that every RM 1 spent on the project yielded a social value of RM 1.27. Based on the results, this study suggests that investment in the RKB project generates a positive return. The current study also revealed that the SROI methodology is appropriate to be adopted in an attempt to offer a structured and systematic basis for revealing and quantifying the social value that are often excluded from the discussion. The SROI method has just recently been used in the area of disaster management filed, and thus, further study is needed to promote its potential for policy-making bodies in the field.

1. Introduction

In the past two decades, floods have been the majority of the natural disasters affecting Malaysia [1]. The growth in the frequency of flooding has had a significant impact on the decision made by the Malaysian government to allocate huge amounts of money to implementing a sustainable flood recovery project named "New Permanent Housing" (*Rumah Kekal Baharu*) RKB project for flood victims whose houses were demolished or heavily damaged during the December 2014 flood.

RKB is a post-flood redevelopment project undertaken by the Malaysian Federal Government, aimed at rebuilding new permanent houses for the victims of the massive flood that occurred at the end of the year 2014, so that they can own a house individually that would meet their needs over a long period of time [2]. Besides, the government is not primarily aimed at providing housing or essential security, but also at providing a range of opportunities to create a sustainable future. Indeed,



almost everyone agrees that this project is widely perceived to improve the lives of individuals and communities, besides generating significant social impacts within society. However, the question is: how can it be measured and therefore proved? Such efforts, which cost the government millions of ringgit, have caused everybody to seem eager to know the value in order to determine whether this investment is really making the changes they intend to. Unfortunately, there is insufficient evidence to support the case and there hasn't been any common agreement about what that return is, or how it might be measured. Since it is difficult to measure, the Malaysian government does not really focus on the "real value" that lies behind the project and the value has always been omitted from the calculation.

SROI is an internationally recognized method used for assessing the value of outcomes generated by social investment [3]. SROI draws from Cost-Benefit Analysis, but it encompasses a much broader concept of how change is created and valued, as well as measuring values not typically expressed in financial statements [4]. It calculates a benefit-to-cost ratio by describing social, economic and environmental costs and benefits with monetary values [5]. In addition, SROI is an effective tool produced to value and enhances the contributions of the government to society. In support of this, NEF Consulting [4] shared their opinion on SROI and said it helps the government to determine what social value a project generates in a solid and comprehensive manner, and therefore manages the project to maximize that value.

As mentioned, the RKB project is associated with a range of benefits, including social, economic and environmental impacts. Therefore, the SROI methodology seems to be relevant to supporting improved understanding and measurement of the value created by the project. However, the SROI concept is still unfamiliar in Malaysia and there are no previous reports of studies using the SROI methodology applied to flood management projects. Consequently, due to the lack of applicable tools – SROI to assess social value, the work done by the government is obviously devalued and thus the social value generated is unknown. Therefore, in an attempt to bridge the gap, this study aims to assess a wide range of social value of the RKB project across multiple stakeholders, by using the SROI methodology.

2.0 Social Return on Investment (SROI)

Social Return on Investment (SROI) is a method for measuring social value, by considering the social, environmental and economic impacts with additional "measurable" indicators. SROI is not always purely monetary, but often can only be measured in terms of the value added to society. In early 2000, SROI was first documented in USA by the Roberts Enterprise Development Fund (REDF) and has been further developed by the New Economics Foundation (NEF), which later evolved into a trusted and widely used framework in the UK. Presently, SROI has been applied in a number of environments and case studies are available on the internet through the SROI network.

SROI is classified into two types: evaluative analysis (evaluate the social value that has already been created by a project) and forecast analysis (estimate how much social value could generate in the future). Developed from traditional cost-benefit analysis and social accounting principles, SROI analysis follows seven (7) key principles that underline how SROI should be implemented and conducted systematically [5]. The principles are described as explained in Table 1.

Table 1. Seven principles of SROI

Principles of SROI	Details
1. Involve stakeholders	Stakeholders who have experienced outcomes must be involved throughout the key stages and should be well informed about what gets measured in the analysis [6].
2. Understand what changes	Strongly related to "Theory of Change" that tells how these changes are created to be stated and supported by evidence [7]. These changes are the outcomes of the activity that should be measured in order to provide

	evidence that the change has taken place.
3. Value the things that matter	Financial proxies are vital to be used to estimate value to the outcomes created.
4. Only include what is material	Determining what information and evidence is significant in the analysis to reflect a true and fair picture so that stakeholders can draw reasonable conclusions about the impact created [6].
5. Do not over-claim	Claim only the value that activities are responsible for creating is the idea of fifth principle of SROI.
6. Be transparent	Demonstrate the basis on which the findings may be considered accurate and honest and show that it will be reported to and discussed with stakeholders.
7. Verify the result	Ensure appropriate conduct of the analysis.

Regarding the development of SROI, it is important to define stages and to rigorously follow them. SROI analysis involves six (6) stages based on the above principles [8]. In Stage 1 (Establishing scope and identifying key stakeholders), the boundaries of projects are clearly defined and who will be involved in the project is selected. For Stage 2 (Mapping outcomes), the engagement of stakeholders often leads to impact mapping, which describes the relationship between inputs (resources), outputs (activities of the projects), outcomes (changes that result from the project) and impacts (long term effects of the changes). Once the outcomes are identified, Stage 3 (Evidencing outcomes and giving them a value) involves gathering data to demonstrate whether or not outcomes have occurred and then assigning a value to them based on indicators. In SROI, the social value of outcomes is estimated using financial proxies. In Stage 4 (Establishing impact), four additional scenarios are evaluated: (a) deadweight (the amount of outcome that would have resulted anyway even without the activity); (b) displacement (how much of the outcome has been replaced by another) and (c) attribution (how much of the outcome is attributed to them by other organizations or individuals); and (d) drop-off (how long the benefits will last). The SROI ratio is calculated in Stage 5 (Calculating SROI). By including all the benefits and then subtracting all negative outcomes (deadweight, displacement, attribution and drop-off), the net present value of impact can be calculated. Finally, the SROI ratio is calculated as the net present value of impacts divided by the value of investment (SROI ratio = net present value of impact/value of investment).

3.0 Methodology

The internationally standardized SROI methodology was selected for this study as a credible evaluation method applied to the provision of flood recovery projects in Malaysia, namely the “New Permanent Housing” (*Rumah Kekal Baharu*) RKB project in Kg. Telekong, Kuala Krai, Kelantan. Five stages of conducting the SROI method with a practical application to the RKB project will be further outlined in the following section.

Table 2. Stages of SROI

Stages of SROI	Details
Establishing the scope and identifying key stakeholder	<ul style="list-style-type: none"> • <i>Establish Scope</i> Identify Case Study - RKB Project in Kg. Telekong, Kuala Krai, Kelantan • <i>Identify Stakeholders</i> Evidence gathered from literature and insight from project evidence - to identify the relevant key stakeholders

Mapping outcomes	An “Impact Map” is developed. During the Impact Map development, data of outcomes will be collected through Survey Questionnaire (SQ), Key Informant Interview (KII), library search and evidences gathering from literatures
Evidencing outcomes and giving them a value	<ul style="list-style-type: none"> • <i>Evidence outcomes</i> The outcomes will be verified by stakeholders and flood victims through the KII and SQ. • <i>Give them a value</i> Desk research and KII will be conducted to identify financial proxies and apply to each outcome
Establishing impact	Desk based analysis of user survey data to calculate deadweight
Calculating SROI	Calculation of the SROI ratio:
	$\text{SROI ratio} = \frac{\text{Present Value (Total Financial Value of Outcome)}}{\text{Value of inputs}}$

4.0 Result and Discussion

4.1 Stage 1 - Establishing scope and identifying stakeholders

4.1.1 Identified stakeholders of RKB project

As the SROI methodology focuses on understanding the perspectives of stakeholders on the impact of the intervention, it is important to identify the possible stakeholders to be considered for possible inclusion or exclusion.

Based on the evidence gathered from literature and insight from project evidence, two groups of relevant stakeholders who have experienced material outcomes or changes from the RKB project or who have invested resources in the creation of outcomes through the project were identified. Table 3.0 below shows the list of stakeholders and an explanation of their roles in the RKB project.

Table 3. List of stakeholders and their roles in RKB project

Stakeholders	Roles in RKB Project
Flood victims	As the main target for project implementation and experienced the most changes
The Malaysian Federal Government	Provide funds to the project and in charge of coordinating the permanent houses

The first group of stakeholders (flood victims) is fully recognized as the main target in the application of the SROI method as they are the primary beneficiaries of the project and have experienced many changes. Besides, the second group of identified stakeholders (Malaysian Federal Government) was the funder of the RKB project is in charge of coordinating the permanent houses and is keen on improving the RKB outcomes.

4.1.2 Inputs and timeframe

The inputs included in the SROI analysis were the total direct implementation cost of the RKB project of Kg. Telekong, summarized in the Report of Allocation and Expenditures of the Construction Budget by the RKB project in November 2020. This includes the cost of permanent houses as well as the cost of infrastructure works. Based on the report, the input costs for the RKB project done in Kg.

Telekong were RM 6,362,144.80. For the timeframe, this evaluation analysis spans a 6-year period between December 2014 and March 2021.

4.2 Stage 2 – Mapping outcomes

Once having identified the relevant stakeholders, it is important to identify the Theory of Change (ToC) by understanding the relationship between inputs, outputs and outcomes. In this study, it is about knowing how the RKB project changes the lives of flood victims in Kg. Telekong as well as the Malaysian Federal Government, thus contributing to the fulfillment of its mission from social, economic and environmental points of view.

To present the ToC, SROI begins with an impact map, with the rationale that stakeholders provide resources (inputs) to deliver flood recovery activities (outputs), resulting in changes (outcomes) for the beneficiaries. For this study, the mapping outcomes for the provision of the RKB project were mainly facilitated through a review of existing literature on the impacts of flood management projects and the information given by the stakeholders via KII and SQ sessions. Figure 1 shows the logical model and the elements of the ToC on which the study is based.

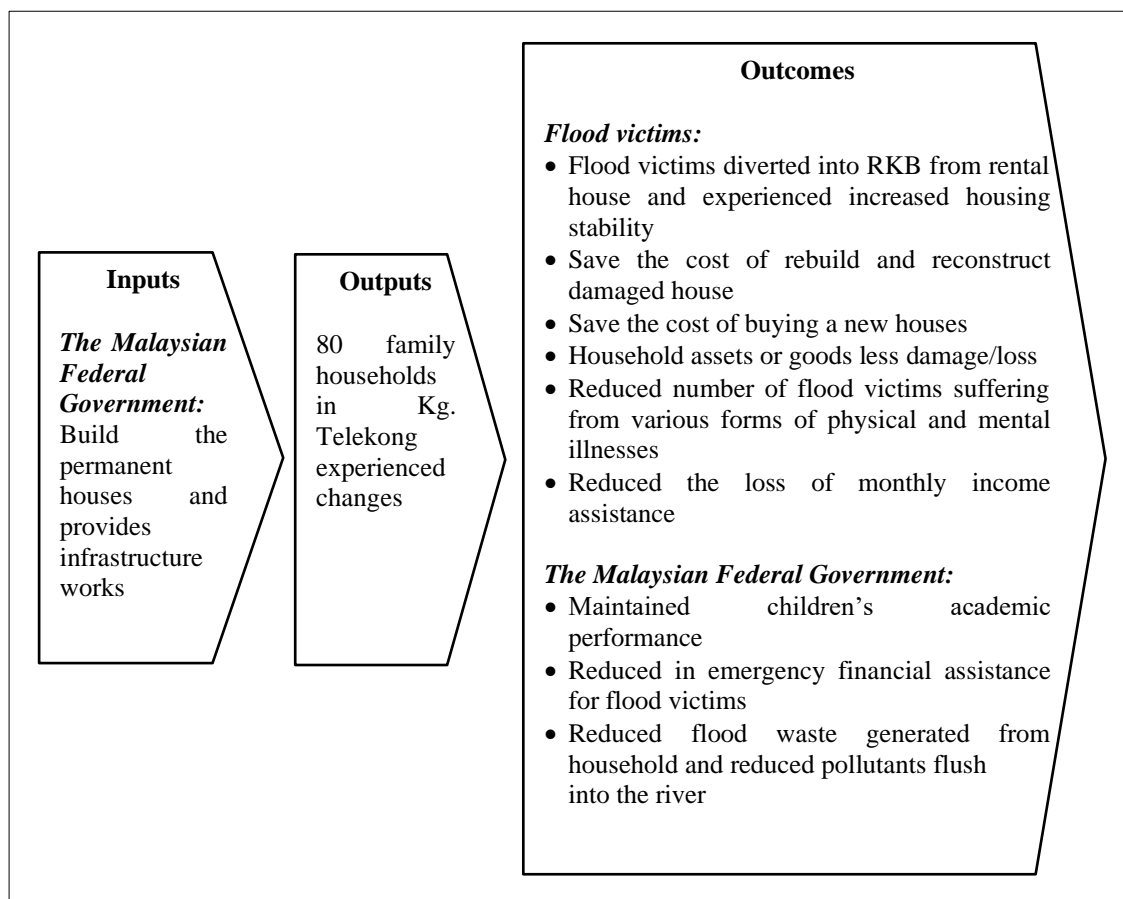


Figure 1. Impact Map of RKB Project in Kg. Telekong

4.3 Stage 3 – Evidencing outcomes by giving them a value

In line with the requirements for SROI Stage 3, it is time to present the indicators used for achieving the material outcomes and assign a financial value to each outcome. According to Nicholls et. al. [8], the indicators had to relate to the number of stakeholders that experienced or are expected to experience the outcome. Therefore, mapped outcomes were financially valued based on primary data gathered through SQs from the flood victims and secondary data using financial proxies from

academic literature and information provided by the Malaysian Federal Government. In Table 4, the analysis has been disaggregated to highlight the outcomes and impacts relative to each stakeholder, within the financial proxies used for their measurement.

Table 4. Financial proxies of material stakeholder described outcomes for RKB project at Kg. Telekong, Kuala Krai, Kelantan

Stakeholder	Outcomes	Indicator	Number of Respondent	Financial Proxies	Total Value (RM)	Source
Flood victims	Flood victims diverted into RKB from rental house and experienced increased housing stability	# of family household	80 family households	Cost of monthly house rental fee	240,550.00	Data collected from SQs
	Save the cost of rebuild and reconstruct damaged house	# of family household	39 family households	Cost of repair and rebuilding of destroyed and damaged houses	1,642,000.00	Data collected from SQs
	Save the cost of buying a new house	# of family household	41 family households	Cost of housing loss	8,200,000.00	Data collected from SQs
	Household assets or goods less damage/loss	# of family household	80 family households	Average cost of damaged/loss of household assets and goods	1,626,837.00	Data collected from SQs
	Reduced number of flood victims suffering from various forms of physical and mental illnesses	# of family household	80 family households	Healthcare cost (per family)	13,236.00	Data collected from SQs
	Reduced the loss of monthly income assistance	# of family household	80 family households	Total loss of monthly income assistance (per family)	694,950.00	Data collected from SQs
	The Malaysian Federal Government	Maintained children's academic performance	# of children	134 children	Cost of special schooling aid (per children)	13,400.00
Reduced in emergency financial assistance for flood victims		# of family household	80 family households	Cost of emergency financial assistance for flood victims	40,000.00	Emergency financial assistance is RM500 per family [10]

Reduced flood waste generated from household and reduced pollutants flush into the river	# of family household	80 family households	Cost of recyclables estimated from flood waste system (per family)	9,129.60	Cost of recyclables items per family is RM114.12 [11]
			Total:	12,480,102.60	

4.4 Stage 4 – Establishing impact

The last step before calculation of the SROI method aims to estimate how much of the outcome would have happened anyway by taking into account other variables that could have an effect on the outcome [8, 12]. These variables, known as “filters”, include deadweight, attribution, displacement, and drop-off. For the estimation of “what would have happened without the provision of the RKB project?” (Deadweight), “how much of an outcome has been replaced by another?” (Displacement), “how much of the outcome was influenced by the contribution of other groups or individuals?” (Attribution) and “degradation of an outcome over time” (Drop-Off) (if relevant), they will be derived from assisted literature searches to locate acceptable percentages for the SROI model. Finally, all these elements of impact are considered when calculating the impact and are normally expressed as percentages. Based on this total, subtract any percentages of each filter, and run the calculations for each outcome (to get the total impact of each set of outcomes), then aggregate the results (to calculate the total impact of the outcomes included). They serve as a “reality check” on the social investment’s actual impact, ensuring that the SROI value is not over-claimed.

4.4.1 Deadweight

Deadweight is a measure to describe the number of outcomes that would have happened anyway, even if the RKB project had not taken place. Applying the deadweight principle to SROI analysis of the RKB project is complicated as without this project, there would be no flood recovery housing project being implemented, no beneficiaries who have benefited from the RKB and therefore, no social value.

For this study, the percentage of deadweight was defined by the researchers as what would have happened if the RKB project had not been implemented in Kg. Telekong, Kuala Krai, Kelantan (Table 5). The percentage was determined based on the information gathered from KIIs and SQs, which quantified the beneficiaries’ level of agreement (Table 5).

4.4.2 Displacement

Displacement is a measure of whether a positive outcome has displaced other negative outcomes. According to Nicholls et. al. [8], displacement is not always relevant to every analysis and in the case of analyzing the impact of the built environment, it is not considered to be applicable.

For this study, outcomes resulting from the efforts of the Malaysian Federal Government do not take the opportunity away from other stakeholders to also experience this outcome and the outcome will not be displaced by others. Besides, it was considered unlikely that the Malaysian Federal Government would have funded a similar post-disaster permanent housing recovery project, given the rarity of this kind of project among flood management projects [13]. Consequently, the displacement of outcomes that occurred as a result of the RKB project is set at 0%.

4.4.3 Attribution

Based on the results obtained, the beneficiaries were asked whether the RKB projects were approached by any other local organizations. Beneficiaries noted that they have never been approached neither by any governmental institution nor by other local organizations that contributed to the outcome value. Moreover, the RKB project was funded solely by NADMA Malaysia and the project is officially considered under NADMA’s umbrella. Hence, 0% will be attributed.

4.4.4 Drop-off

Since the RKB project was designed to assist flood victims in becoming resilient to future floods and shape a post-flood sustainable community development, there is a strong likelihood that some of the generated outcomes will follow the duration of flood victims staying in RKB. Therefore, the evaluation period of 5 to 6 years enabled some judgments on these long term outcomes to be made. For this SROI evaluation analysis, a set of questions were included in surveys to collect drop-off data from the beneficiaries. However, this produced an unexpected finding that all beneficiaries were most likely to record the outcomes of the RKB project last longer until the present. As a result, there is no drop-off in the calculation and it tends to be 0%.

4.4.5 Calculation of impact

When calculating impacts, the researcher followed the precautionary principle by multiplying the quantity of the outcomes with the value of the financial proxy and deducting the percentage of deadweight for each outcome. Lastly, the total impact is calculated by adding all the results together (Table 5).

Table 5. Impact Calculation for Kg. Telekong, Kuala Krai, Kelantan

Stakeholders	Outcomes	Value (RM)	Deadweight	Displacement	Attribution	Drop-off	Impact (RM)
Flood victim	Experienced increased housing stability after diverted into RKB from rental house	240,550.00	12%	0%	0%	0%	211,684.00
	Save the cost of rebuilding and reconstructing damaged houses	1,642,000.00	27%	0%	0%	0%	1,198,660.00
	Saved the cost of buying a new house	8,200,000.00	33%	0%	0%	0%	5,494,000.00
	Household assets or goods less damage/loss	1,626,837.00	55%	0%	0%	0%	732,076.65
	Reduced number of flood victims suffering from various forms of physical and mental illnesses	13,236.00	45%	0%	0%	0%	7,279.80
	Reduced the loss of monthly income assistance	694,950.00	43%	0%	0%	0%	396,121.50
	The Malaysian Federal Government	Maintained children's academic performance	13,400.00	42%	0%	0%	0%
	Reduced in emergency financial assistance for flood victims	40,000.00	17%	0%	0%	0%	33,200.00
	Reduced flood waste generated from household and reduced pollutants flush into the river	9,129.60	8%	0%	0%	0%	8,399.23
Total:							8,089,193.18

4.5 Stage 5 – Calculating the SROI

After calculating all the impacts of all the outcomes considered, all the conditions for the calculation of the SROI ratio are eventually met. The SROI ratio is derived from dividing the impact value by the value of the investment.

A visual representation of the key stages in calculating the SROI ratio for RKB at Kg. Telekong can be seen in Figure 2. This evaluative SROI case study shows that the RKB project located at Kg. Telekong revealed an SROI ratio of 1:1.27. This means, for every RM 1 invested in the development of the RKB project at Kg, Telekong, nearly RM 1.27 of social value will be created. The result demonstrates that investment in the RKB project generates important social value for the community.

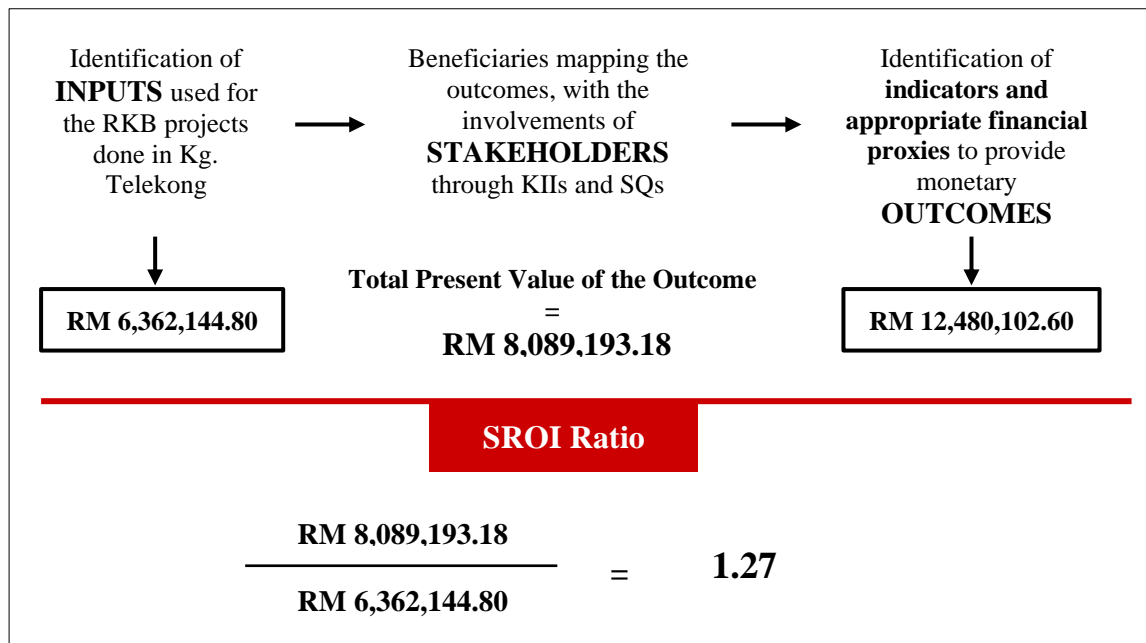


Figure 2. SROI Ratio Calculation for RKB Kg. Telekong

5.0 Conclusion

In conclusion, this SROI case study revealed that for every RM 1 invested in the flood recovery project through RKB, a SROI of more than 1.0 in social value is created for the beneficiaries. The evidence from this study has demonstrated that the SROI methodology is a useful tool for assessing social value within the field of disaster management. In this regard, SROI therefore enables the government to communicate about project investment decisions and estimate the value-for-money for a project. Nevertheless, further research is needed to improve the robustness of the SROI application in the disaster management field. To the best of our knowledge, this study represents the first effort in Malaysia to apply SROI analysis to value sustainable flood recovery project. In fact, even if the RKB project has created a positive social value, it would be imprudent to assume that other flood recovery projects are effective based on the results of this study. Moreover, the lack of globally recognised proxies makes comparative studies even more difficult. Thus, further research is needed to better explain the social impacts of flood recovery projects in Malaysia and the present study should be seen as an important building block that can be used to better understand the social impact, while providing researchers with a useful set of social impact proxies that may prove useful in future SROI initiatives.

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