



Applying Social Return on Investment (SROI) to Build a Sustainable Flood Recovery Project

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Abstract: Sustainability is becoming increasingly important agenda for governments, organisations and academic institutions due to the environmental and social challenges in the world today. Sustainability is no longer all about the environmental aspects but also the social and economic aspects, which can only be achieved by attaining an effective balance between these three aspects. In this regard, a study of Social Return on Investment (SROI) is critical in fostering the means to manifest the importance of these goals and it urges a new approach to define a full value of sustainability. A review of the social impact sectors identifies that SROI is the most effective approach with a solid implementation framework. Therefore, the concept of SROI is reviewed in this paper, as well as its application to government investment in flood recovery projects. This paper is prepared by conducting a series of literature reviews in order to establish a foundation for a new insight for contribution to knowledge. The researchers provides a step-by-step account of SROI implementation on a flood recovery project named “New Permanent Housing” (*Rumah Kekal Baharu*) RKB project in Kuala Krai, Kelantan. Applying the SROI methodology to the flood recovery project was feasible and provided guidance and interpretation into the project’s impact. Thus, the SROI framework can be a valuable tool for stakeholders to assess the sustainability of social investments in a sustainable environment.

Keywords: SROI, sustainability, sustainable flood recovery project, social impacts

1. Introduction

In recent years, many social investments have come to the same conclusion without abandoning the sustainability purpose for a better future. Including the disaster management field, disaster researchers have embraced and applied the concept of sustainability to recovery (Oliver-Smith, 1990; Berke et al., 1993; Becker & Stauffer, 1994a; Eadie et al., 2001). As floods increasingly endanger the effective functioning of a community or a society, the governments have allocated huge amounts of money to implement a sustainable flood recovery project named “New Permanent Housing” (*Rumah Kekal Baharu*) RKB project, by considering three major pillars of sustainability such as social, economic and environmental.

RKB is a post-flood redevelopment project undertaken by the Malaysian Federal Government, Kelantan State Government and a host of Non-governmental Organisations (NGOs). This project aimed to rebuild 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 (Roosli & Collins, 2016). Besides, the government is not only primarily aimed to provide housing or essential security, but also to provide a range of opportunities to create a sustainable future.

As we all know, money dedicated to the RKB project initiative is meant to support flood victims recover quickly, return to normalcy as quickly as possible, and become more resilient to future flood incidents. However, there is a constant question as to whether such a project in a broad sense meets a true sustainable flood recovery. Since it is difficult to measure, the real social value has always been omitted from the calculation. In attempts to solve these problems, the Malaysian government has looked into the SROI and its applicability to government flood recovery projects so as to evaluate a wide range of values such as social, economic and environmental impacts.

SROI is a framework used for assessing the social, economic and environmental value generated by an intervention, project or organisation. 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 (Kara, 2017; Seow et al. 2020). It calculates a benefit-to-cost ratio by describing social, economic and environmental costs and benefits with monetary values (Nicholls et al., 2012). SROI is useful as a strategic tool to value and enhance the contributions of government to society. In support of this, NEF Consulting (2020) 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 maximise that value.

SROI concept is still unfamiliar in Malaysia, and there are no examples of the Malaysian government applying this method to flood management projects. However, a seminal contribution of Ramli et al. (2016) proves that SROI can be a useful tool, particularly applicable in flood management programs. For this study, the researchers carried out a step-by-step guide to implementing SROI on a government flood recovery project named “New Permanent Housing” (*Rumah Kekal Baharu*) RKB project in Kuala Krai, Kelantan. For that reason, this study establishes a critical reflection of the SROI method’s contribution to the government flood recovery project by looking into the sustainability aspects (social, economic and environment), with additional “measurable” indicators.

1.1 Overview of Social Return on Investment (SROI)

Social Return on Investment (SROI) is a method for calculating the social value or impact by considering the social, economic and environmental impacts with additional “measurable” indicators. In early 2000, SROI was first reported in the United States by the Roberts Enterprise Development Fund (REDF) and it was later expanded by the New Economics Foundation (NEF), which later evolved into a trusted and commonly 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 website.

Developed from social accounting approaches and traditional cost-benefit analysis, SROI analysis is based on seven (7) principles that determine how SROI being applied as well as enforced in a systematic manner (UK Cabinet Office, 2012). The principles are described as follows:

Table 1 - Seven Principles of SROI

Principles of SROI	Details
Involve stakeholders	Stakeholders need to be identified and active at all stages of the analysis and should be well informed about what gets measured in the analysis (The SROI Network, 2020).
Understand what changes	Strongly related to the “Theory of Change”, which explains how these changes are generated and are supported by evidence (Valades, 2014). These changes are the results (outcomes) of an activity that need to be assessed to show that the change has occurred.
Value the things that matter	Financial proxies are essential to be used to estimate the value of the outcomes created.
Only include what is material	Identifying the facts and information is important in the analysis to provide an objective and fair view for stakeholders to draw fair and rational assumptions about the impact created (The SROI Network, 2020).
Do not over-claim	Claim only the value that activities are responsible for generating.
Be transparent	Establish the criteria for judging whether or not the conclusions are factual and truthful, as well as how they will be reported to and shared with stakeholders.
Verify the result	Ensure that the analysis is conducted appropriately.

According to *A Guide to Social Return on Investment*, SROI analysis involves six (6) stages based on the above principles (Nicholls et al., 2012):

- (1) Establishing scope and identifying key stakeholders
- (2) Mapping outcomes
- (3) Evidencing outcomes and giving them a value
- (4) Establishing impact
- (5) Calculating SROI
- (6) Reporting, using and embedding

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 the impact mapping as revealed in Figure 1, which describes the relationship between inputs (resources), outputs (activities of the projects), outcomes (changes results 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 would have resulted even without the activity); (b) displacement (how much of the outcomes has replaced by another) and (c) attribution (how much of the outcome is attributed by other organisations 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 adverse 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). The last step, Stage 6 (*Reporting, using and embedding*), includes sharing and reporting the results with stakeholders, embedding positive outcomes and verification of the report. Verification is recommended, but it is not mandatory.

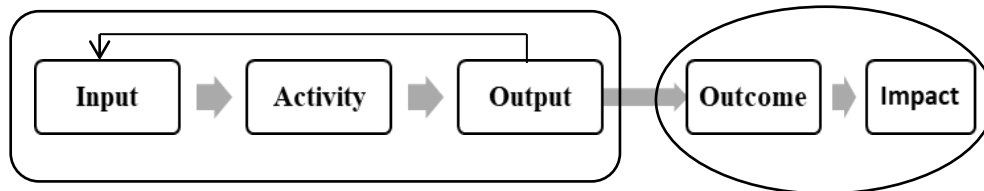


Fig. 1 - Impact map

An example will be given to demonstrate the SROI approach. A flood recovery project named RKB aims to provide a range of opportunities to create a sustainable future for flood victims via the development of new permanent houses. In this case, the *inputs* are time, money and staff; the key stakeholders are the flood victims and the government. The development of new permanent houses is the *activity*; the *output* is “shifting the flood victims to permanent houses”. It is assured that with the permanent houses, they will experience greater housing stability and the housing assets or goods less damaged (*outcomes*). *Displacement* is the possibility of experience greater housing stability by other contenders. The potential *deadweight* is that some residents never experienced housing assets or goods damage even without the provision of the RKB project. *Attribution* is that other than NADMA or JKR, who else was responsible for the outcomes? *Drop off* refers to how long the benefits will last. In this instance, if the flood victims do experience the benefits from 2015 until today, hence drop off may not be considered in the calculation. Lastly, taking into account the benefits and various situations, the impact per year is estimated. The SROI ratio is then calculated using an applicable discount rate and the investment’s net present value. This ratio, along with the story behind it, demonstrates whether or not this project is cost-effective and beneficial to society.

2. Methodology

The internationally standardised SROI methodology was selected for this study as a credible evaluation method applied to the provision of flood recovery project in Malaysia, namely the “New Permanent Housing” (*Rumah Kekal Baharu*) RKB project. In the previous section, the stages of the SROI method were briefly stated and this section will explain the process associated with each of the five stages of the SROI method which were established into a framework appropriate for the RKB project, summarised in Table 2. Furthermore, five (5) 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 scope and identifying key stakeholders	<ul style="list-style-type: none"> • <i>Establish Scope</i> Identify Case Study - RKB Project in Kuala Krai, Kelantan • <i>Identify Stakeholders</i> Some evidence from the literature/project and Key Informant Interview (KII) with pre-identified agencies - to identify the relevant key stakeholders
Mapping outcomes	<p>An “Impact Map” is constructed. During the Impact Map development, data on outcomes will be collected through Survey Questionnaire (SQ), Key Informant Interview (KII), library search and evidence gathering from literatures</p>
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 will be conducted to recognize and relate financial proxies to each outcome
Establishing impact	<p>Desk based analysis of user survey data to evaluate deadweight, attribution and drop-off (if relevant)</p> <p>The SROI is calculated as follows:</p>
Calculating SROI	$\text{SROI ratio} = \frac{\text{Present Value (Total Financial Value of Outcome)}}{\text{Value of inputs}}$

Description of Case Study: Kuala Krai, Kelantan

3. Application

This study is carried out in Kuala Krai, Kelantan, in the Batu Mengkebang district, situated between the longitudes 5° 31' 51.07" N and latitude 102° 12' 7.2" E. Kuala Krai district covers a land area of 2,329 km². Almost every year, Kuala Krai district regularly experiences flood disasters. At the end of December 2014, a catastrophic flood is known as the “Bah Kuning” inundated nearly 85% of the total Kuala Krai region, especially the Manik Urai Village, Manjor Village, Karangan Village, and Laloh and Dabong Village (Ling et al., 2018). Due to this massive flood, a total of 1,257 families lost their homes and properties, including houses, vehicles, and other belongings that have been seriously damaged (Sapa-dpa, 2014). Besides, flood water has seriously destroyed and swept away some business premises. So, keeping in view this flood caused a vast population whose houses were completely damaged, the Malaysian government has implemented a flood recovery project named “New Permanent Houses” (*Rumah Kekal Baharu*) RKB project in several districts of Kuala Krai, Kelantan.

Identifying Stakeholders

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

In the study, two groups of relevant stakeholders were identified. These stakeholders were encouraged to consider people and stakeholders who experienced positive or negative, intended or unintended changes, including:

- Flood victims
- Federal Government
- Kelantan State Government
- Non-government Organisations (NGOs)

The first group of stakeholders (flood victims) is fully recognised as the main target in the application of the SROI method as they are the ones who have experienced the changes and benefits. Besides, the second group of identified

stakeholders (Federal Government, Kelantan State Government and NGOs) who were the developers of the RKB project with significant roles throughout the project and did various activities which directly or indirectly related to the resilience of a community where flood victims belong. These stakeholders were consulted through interviews and survey questionnaires to identify the social, economic and environmental impacts of direct intervention in the RKB project. Table 3 lists the individuals who have been referred to as stakeholders in the case being studied.

Table 3 - Identified stakeholders in SROI assessment

Stakeholders	Reasons of Inclusion
Flood victims	Beneficiaries of the activity considered in the project
Federal Government	Developer of RKB project
Kelantan State Government	Developer of RKB project
NGOs	Developer of RKB project

Mapping Outcomes and Evidencing Outcomes by giving them a Value

Mapping a project’s outcomes is important until all the relevant stakeholders have been identified. During the impact map development, data of outcomes will be collected through SQ, KII, library search and evidence gathering from literature. Firstly, the researchers will identify all the outcomes from the evidence gathered from the literature. Next, these outcomes will be verified by stakeholders and flood victims through the KII and SQ. The primary goal of this data collection was to verify and investigate more robust data for outcomes by asking all the relevant stakeholders what had changed after the implementation of the RKB project.

Table 4 details the expected impact map for the RKB project. As shown in the table, the outcomes have been divided into three different categories (social, economic and environmental), and each outcome indicator is reported.

Table 4 - Expected Impact Map for RKB Project

Stakeholder	Categories	Outcomes	Indicators
Flood victims	Social	Flood victims were diverted from rental houses to permanent houses	• Monthly house rental fee
		Save the cost of rebuilding and reconstructing their own houses	• Cost of restoring and rebuilding damaged houses
		Household assets or goods do less damage	• Cost of replacement damaged household assets or goods (e.g. vehicles, televisions and electronic devices)
		Reduced psychosocial problems (e.g. depression)	• Hospital treatment costs
	Reduced physical health problems (e.g. skin diseases)	• Hospital treatment costs	
	Economic	Reduced the loss of monthly income assistance	• Total loss of monthly household income assistance
Federal Government	Social	Flood victims become safer and less vulnerable to future floods	• Cost of permanent house per unit in Kuala Krai, Kelantan
		Maintained children’s academic performance	• Cost of special schooling aid (per children)
Kelantan State Government		Reduced in emergency financial assistance for flood victims	• Cost of emergency financial assistance for flood victims (per family)
NGOs			

Economic	Provide new infrastructure that delivers essential services to the community and is built in accordance with changing recovery needs	<ul style="list-style-type: none"> • Cost of building new infrastructure (e.g: roads, bridges, electricity, sewerage systems, schools, hospitals, community halls and <i>surau</i>)
Environmental	Reduced flood waste generated from households and reduced pollutants flushed into the river	<ul style="list-style-type: none"> • Cost of recyclables estimated from flood waste system (per family)

Establishing impacts

The last step before calculating the SROI method aimed to estimate how much of the outcome would have happened anyway by taking into account other variables that could affect the outcome (Nicholls et al., 2012; Purwohedi & Gurd, 2019). These variables, known as “filters”, include deadweight, attribution, displacement, and drop-off. For the estimation of “*what would have happen 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 for each set of outcomes), then aggregate the results (to calculate the total impact of the outcomes included). They ensure that the SROI value is not over-claimed and serve as a “reality check” on the social investment’s actual impact.

Since this is a review study, it will be beneficial to apply the model in combination with assessing the deadweight, attribution and drop-off results to achieve a more comprehensive understanding of the project’s impacts from a potential viewpoint.

Calculation of SROI ratio

After calculating the impacts of all the outcomes considered, all the conditions for the calculation of the SROI ratio are finally met. Besides, it entails totalling up all the benefits, deducting drawbacks and contrasting the outcomes to the investment, both of which are presented as monetary values (Banke-Thomas, 2017). In cases in which outcomes last beyond a year, then projections are made into the future by calculating the net present value.

$$\text{SROI ratio} = \frac{\text{Present Value (Total Financial Value of Outcome)}}{\text{Value of inputs}}$$

3.1 Importance of SROI on Sustainable Flood Recovery Projects

Though SROI is a valuable tool in general, it may be especially useful in a sustainable flood recovery context. SROI is one of the alternative tools being encouraged to understand and measure social, economic and environmental impacts that have been developed (NEF, 2009; SROI Network, 2012).

In this scenario, SROI facilitates better engagement across different stakeholders and serves as a platform for them to communicate effectively, which is critical considering various stakeholders who are involved in sustainable flood recovery projects. Engaging with intended beneficiaries will help to bridge the divide between social projects on one hand as well as public and/or private investors on the other. Since SROI is intended to be open and transparent, the calculations of various scenarios (deadweight, displacement, and attribution) and expectations to define indicators or financial proxies are specifically clarified and conveyed to stakeholders (Krev et al., 2013). In general, collaboration between different stakeholders can be fostered.

Besides, recognising the cost and benefits of a systematic approach like flood recovery projects involves assessing the value of sustainability (e.g. social, economic and environment) in SROI analysis. SROI helps to present a clear and succinct message about the government’s project impacts or added values by analysing three aspects that include social, economic and environmental along with the implemented project. By helping to reveal the added value of social, economic and environmental outcomes, it creates a holistic view on whether a flood recovery project is beneficial.

Furthermore, since the problems and strategies of the flood recovery projects are often multidimensional, stakeholders working in the projects should be strategic and take advantage of cost-sharing opportunities. The lack of transparency here is unhelpful as it leads to inevitable but fruitless speculation. Thus, SROI unfolds and promotes

transparency and accountability and at the same time being clear and transparent to all stakeholders about what/how the value is incurred. As specified by Parker & Williams (2010), the SROI process supports openness and accountability as groups seek to enhance the triple bottom line of social, economic and environmental value generated by their activities.

4. Discussion and Conclusions

To our knowledge, this is the first study that illustrated the experimentation of applying the SROI method to the sustainable flood recovery project in Malaysia. This study highlighted the importance of recognising and valuing the benefits of implementing sustainable flood recovery projects in the community. In this regard, SROI can be a useful tool that enables the government to communicate about project investment decisions and estimate the value-for-money for a project. By looking into the three major pillars of sustainability such as social, economic and environmental aspects, SROI analysis captured changes across the entire continuum theory of change (input impact) (refer to Figure 2). This study illustrated that SROI analysis can be applied in the case of the RKB project as positive social benefits may be created. Engaging closely with SROI's targeted beneficiaries will aid not only in minimising the problems posed by flood victims but also to reveal perspectives and possible negative effects that would otherwise be overlooked. Thus, the researchers believe that SROI could provide a useful framework for application to sustainable flood recovery.

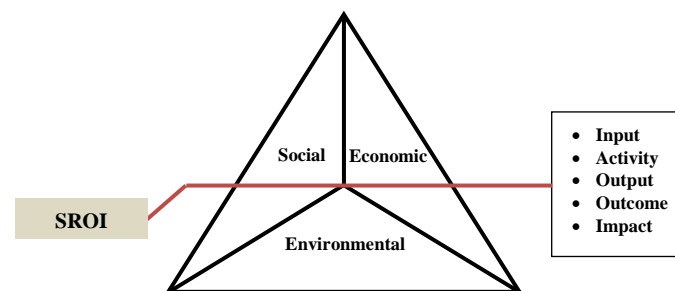


Fig. 2 - Spectrum of theory of change

In terms of the study's future perspective, applying the model to a review of the deadweight, attribution and drop-off effects to achieve a complete understanding of the project's impacts might be fascinating. In addition, further study could explore the model with the estimation of the true value of social impacts in terms of social, economic and environmental on relevant stakeholders. Since the SROI approach is still relatively new in the disaster field, further studies are required to promote its potential for policymakers in the field.

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