



# Applying Soft System Methodology in Community IT-Based Project: Case of Poverty Tramps

Wan Abdul Rahim Wan Mohd Isa<sup>1</sup>, Ahmad Iqbal Hakim Suhaimi<sup>2</sup>, Nurulhuda Noordin<sup>3</sup>,  
Mohd Sabry Mohd Safiq<sup>4</sup>, Wan Nur Nazihah Wan Azmi<sup>5</sup>, Nurul Asyikin Norham<sup>6</sup>, Salah Hammami<sup>7</sup>  
<sup>1,2,3,4,5,6</sup>Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, Shah Alam, Selangor,  
Malaysia. wrahim2@uitm.edu.my

<sup>7</sup>Salah Hammami, College of Computer and Information Sciences, King Saud University, Riyadh,  
Kingdom of Saudi Arabia. shammami@ksu.edu.sa

## ABSTRACT

The main objective of this research is to apply the Soft System Methodology (SSM) in the development of a community IT-based project. The poverty tramps at Masjid Jamek, Kuala Lumpur is being selected as a case study. There are several events and activities being implemented by the Non-Government Organizations (NGOs) and communities to help the tramps in the form of home, food, clothes, and job. However, there are a lack of synergy of efforts from communities and NGOs. In addition, the level of participants by the poverty tramps and related stakeholders towards the activities may not be inclusive since the event is promoted through social media only. Therefore, a digital platform is being proposed to help the Non-Government Organization (NGO) and communities to interact with each other. More opportunities should be given to the communities in terms of having access to the activities and events and programs organized by the Non-Government Organization (NGO). The percentage of poverty among the tramps can be reduced if have the right digital platform is being utilized by the Non-Government Organization (NGO) in getting donations from communities. As a result, a prototype website is suggested as proof of concept for further official implementation considerations by the authorities and related stakeholders.

**Key words:** Sustainable Development Goals (SDG), No Poverty, Soft System Methodology (SSM), Community IT-Based Project

## 1. INTRODUCTION

Based on the observation of the poverty tramps at the Masjid Jamek, Kuala Lumpur, Malaysia vicinity, there are few problems that have been discovered. The poverty tramps lack necessities such as accommodation food, clothes, and job. They had to depend on the support from communities in

providing them the needs for survival. The Non-Government Organization (NGO) facing problems in helping the tramp as there is no specific digital platform to aid the poverty tramps. The NGO has difficulties in getting sponsorship to help the tramp. Apart from that, the NGO also faces problems in spreading the news, projects, or events to the communities that contributed to a lack of support from communities and related stakeholders. On the community side, they have no right channel to give the donations to the tramp or to the NGO. They face problems in getting the information related to the events and the information about the NGO.

The main objective of this research is to apply Soft System Methodology (SSM) in Community IT-Based project. The project supports United Nation's Sustainable Development Goals (SDG) 1: No Poverty. Various projects had been supporting SDG 1, as such research on the impacts of social protection, tenure security, and building resilience on forest [1] and for rural communities [2 - 4]. This research adopted the Soft System Methodology (SSM) as being implemented in the other community IT-based project [5]. Future work includes applying in other similar projects [6-7] that are applicable and beneficial for communities.

## 2. BACKGROUND

For this project, there are three stakeholders that had been identified.

- Poverty Tramps at Masjid Jamek, Kuala Lumpur, Malaysia  
Tramp as a vagrant or beggar
- Non-Government Organization (NGO)

One NGO was being selected. The NGO is any nonprofit voluntary citizens group that is organized on a local or national or international level. In general, the NGO selected is a voluntary work by a group of youth aiming for a better tomorrow.

- Communities

The group of people of interest.

### 2.1 Project Scopes

The scopes of this project are listed below:

- User context in this project focuses on tramp, the NGO, and communities.
- Location context in this project cover tramp at Masjid Jamek, Kuala Lumpur, Malaysia vicinity.
- Focus of poverty issues among tramp at Masjid Jamek, Kuala Lumpur, Malaysia vicinity.

### 2.2 Project Significance

The significance of this project is as per below:

- Tramp

Tramp will get the benefits in terms of basic needs to continue their survival of life.

- NGO

- The NGO gets sponsorship to help the tramps' people for survival.
- The NGO gets volunteers from communities in joining the events or programs.
- The NGO notifies communities with the latest events/news/projects.

- Communities

- The communities get notifications regarding the latest events/news/projects.
- The communities make donations with the right channel.

## 3. METHODOLOGY

This section discusses the Soft System Methodology (SSM) that being applied in this project.

### 3.1 Soft System Methodology (SSM)

The Soft System Methodology (SSM) is an approach to organizational process modeling and can be used both for general problem solving and change management [8]. The SSM is developed as an alternative to traditional 'hard' approaches to clearly defined the problems [8]. The SSM involves the widest possible research into the nature of the problem, the production of root definitions and conceptual models, the identification of feasible and desirable changes, and finally the recommendations for action [8]. This provides a framework for iterative inquiry and learning about the

organization. The methodology provides a well-defined action research approach to help address wicked problems about the organization [8].

### 3.2 Stage of SSM Model

The seven-stage model of SSM [8] is adapted below.

- **Stage 1:**

#### i. Find out about the problem situation

The Non-Government Organization (NGO) has difficulties in providing the basic need which includes food, home, clothes, and job for the tramp people in terms of sponsorship and support from the communities. The preliminary study investigates how the NGO get charity from the communities to help the tramp on their basic needs. Therefore, an interview session is conducted to collect data regarding the charity. This study was conducted amongst the tramp and NGO at Masjid Jamek, Kuala Lumpur, Malaysia to know about their problem and challenges they encounter.

#### ii. Key players and their perception of the situation

- Tramp
- Non-Government Organization (NGO)
- Communities

#### iii. Current process flow

The tramps are located at the Masjid Jamek, Kuala Lumpur, Malaysia vicinity are lack of basic needs. They are depending heavily on charities and funds distributions by the NGOs and related stakeholders. However, the Non-Government Organization (NGO) does not have a proper platform for them to get the donation from communities.

The founder of the NGO was interviewed about (i) how they conduct the program to give food to the tramps, and (ii) how often they have the activities with the volunteer to help give out the foods to the tramps, (iii) how they gathered the volunteers and (iv) problem that they faced on how to gather the volunteers. They shared information on how they seek the poverty tramps and the vicinities of Masjid Jamek, Kuala Lumpur, Malaysia are being targeted. The information and details about the interview are shown in Table 1 and Table 2.

**Table 1:** Interview Information

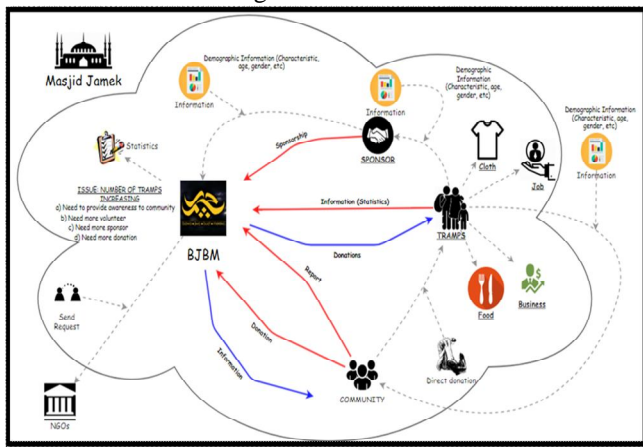
Workplace Observation	Workshop and Discussion
Tramp at Masjid Jamek	Workshop
Lack of platform in terms of technology	Prototype

**Table 2:** Interview Details

Method Interview	Details	Outcome
Face to face	Date: 22 April 2018; Interviewee: Mr. Afiq	Collection of data and information regarding the tramp at Masjid Jamek
Audio recording		

**• Stage 2:**

The rich picture of poverty tramps, the Non-Government Organization (NGO), communities, and stakeholders are being shown in Figure 1. All the information collected in stage 1 and stage 2 is put in a pictorial format called Rich Pictures as shown in Figure 1.



**Figure 1:** Rich Picture

**• Stage 3:**

The Root Definition is created for each relevant system that is written as sentences that elaborate a transformation.

**A system to do P by means of Q to do R**

**P – What the system does**

- Provide a platform that helps the Non-Government Organization (NGO) and communities to interact.

**Q – How it does it**

- By getting the donations from the communities.

**R – Why it’s being done**

- To get the proper and better platform to transfer the donations and getting volunteers

There are six elements that make up a well-formulated root definition which is summed up in the mnemonic CATWOE. Table 3 shows the CATWOE checklist.

**Table 3:** CATWOE Checklist

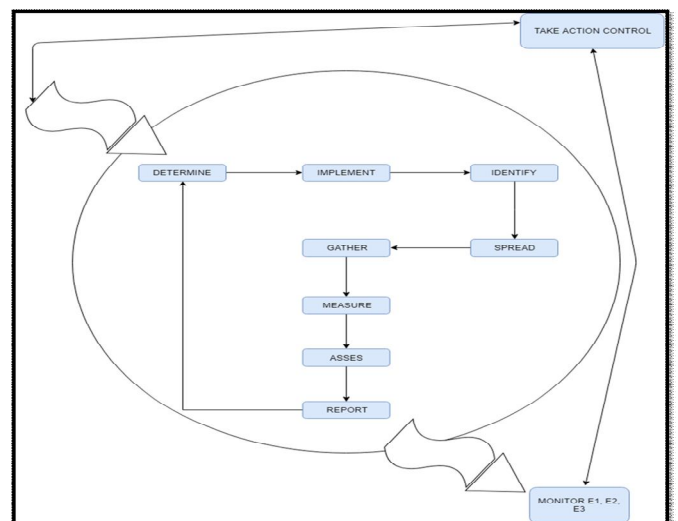
Checklist	Description
Customer	Community of Masjid Jamek area.
Actors	Community of Masjid Jamek area, tramps and the NGO.
Transformation	Collect donation to provide the basic needs such as home, clothes, food, and job to tramp.
Worldwide	Improve accessibility between the public which is the communities and tramps.
Owner	The Non-Government Organization (NGO).
Environment	Government policies and Technology constraint.

**• Stage 4:**

The Conceptual Model is a human activity model that rigorously matches the root definition. The activities can be derived from the verbs in the root definition [6]. The model in Figure 2 shows the dependencies between these activities.

The list of activities which perceive as necessary for this transformation stated in CATWOE are:

- Determine the right approach to collect donations from communities to help tramps at the Masjid Jamek area.
- Implement the approach/ system.
- Identify the program and target community for donation.
- Spread the program details through the system to get donors, sponsors, and volunteers.
- Gather total amount collected from the donors, list of sponsors, and number of volunteers who want to participate through the system.
- Measure the amount collected from the donors, the number of people that willing to join the volunteering program and organization that want to sponsor.
- Assess the impact of system implementation.
- Report to the public on the results to create awareness.



**Figure 2:** Conceptual Model

Measure of Performance

**E1 – Efficacy**

- Does the system able to help collect donations and spread awareness more effectively?

**E2 – Efficiency**

- Does the system able to help Tramps at Masjid Jamek?

**E3 – Effectiveness**

- Do Non-Government Organization (NGO) able to spread awareness and collect necessary donations for Tramps at Masjid Jamek?

**• Stage 5:**

The activities in the conceptual model are compared with the real world. This model is used to check that the conceptual model represents a viable human activity system. S is a formal system that meets the following criteria.

- S can help the Non-Government Organization (NGO) to get the sponsorship to help the tramps’ people for survival.
- S can help the Non-Government Organization (NGO) to get volunteers from communities in joining the events or programs.
- S able to notify the communities with the latest events/news/projects.
- S able to notify the community regarding the latest events/news/projects.
- S can help the community able to make donations with the right channel

**• Stage 6:**

The purpose of this stage is to investigate which activities are both culturally and systematically desirable in order to explore the feasibility of moving from the current situation implied by the conceptual model. Moreover, bringing people together to share the understanding of the different perceptions of the situation and getting people concerned to judge the desirability of the activities. In this stage, it takes the possibilities for changing the situation generated in the previous stages. Table 4 shows the analyzing feasible and desirable changes.

**Table 4:** Analyzing Feasible and Desirable Change

Changes	Current Situation	Goal	Implication
Technology platform	<ul style="list-style-type: none"> <li>• The Non-Government Organization (NGO) uses social media such as Facebook, Instagram, and Twitter to spread the latest events, news, and projects the communities in getting the volunteer.</li> <li>• Communities give a direct donations to the NGO.</li> </ul>	To provide a better and secured platform for the Non-Government Organization (NGO) and communities	<ul style="list-style-type: none"> <li>• The Non-Government Organization (NGO) can keep track of the timeline and have a database for the registered volunteer.</li> <li>• Communities can use the platform to donate based on NGOs category including the Non-Government Organization (NGO).</li> </ul>

**• Stage 7:**

The purpose of this stage is to recommend changes and tactics for implementation of those changes as shown in Table 5.

**Table 5:** Taking Action

Volunteer Registration	Donation
<ul style="list-style-type: none"> <li>• Communities can register as a volunteer to join the activities organized by the Non-Government Organization (NGO).</li> <li>• Communities can select a specific event that they want to join</li> </ul>	<ul style="list-style-type: none"> <li>• Communities donate through the right channel.</li> <li>• The Non-Government Organization (NGO) can collect the data from the database</li> </ul>

**4.SOLUTION**

This section discusses the solution purposed based on the SSM analysis earlier. The website created for the Non-Government Organization (NGO) to achieve the objectives.

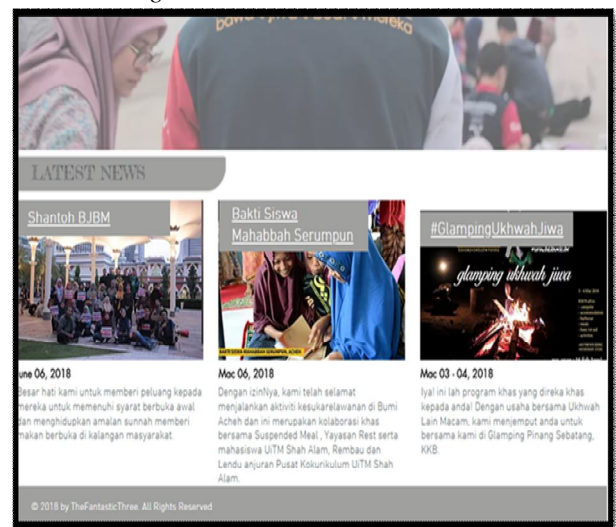
**4.1 System Design**

**• Main Page**

- Using the slider tool in the main page to shows pictures from recent activities to the Non-Government Organization (NGO) page visitors.

**• Latest News**

- Display the latest and upcoming events to visitors. This will become the main section that will notify members or non-member regarding the “Around the corner” event as shown in Figure 3.



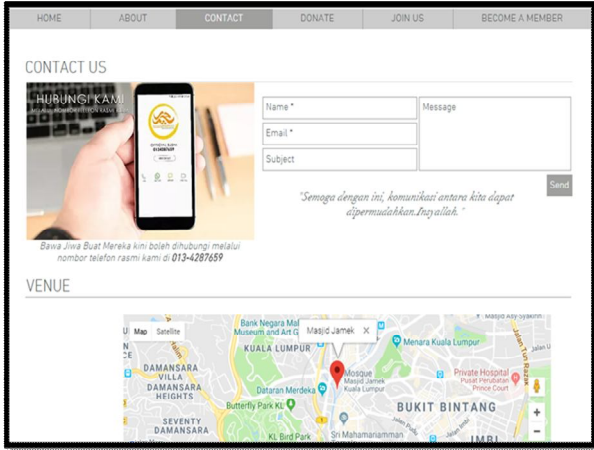
**Figure 3:** Latest News Page

- **About**

- Describe the history of the Non-Government Organization (NGO) and introduce visitors with the founder that started this.

- **Contact**

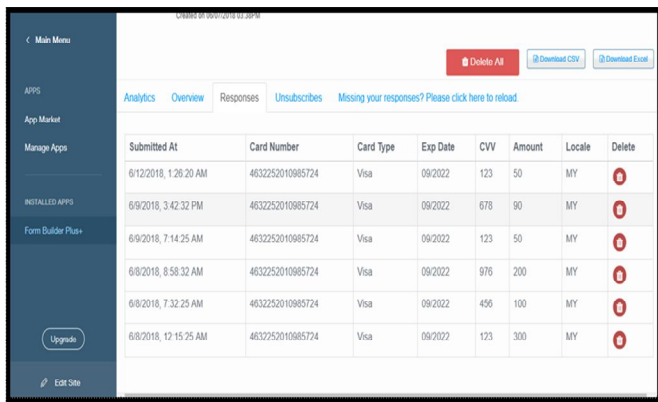
- Provide detail like phone number and location of the events as shown in Figure 4.
- Visitors able to report any concerning community that required extra helping hands to survive.



**Figure 4: Contact Page**

- **Donate**

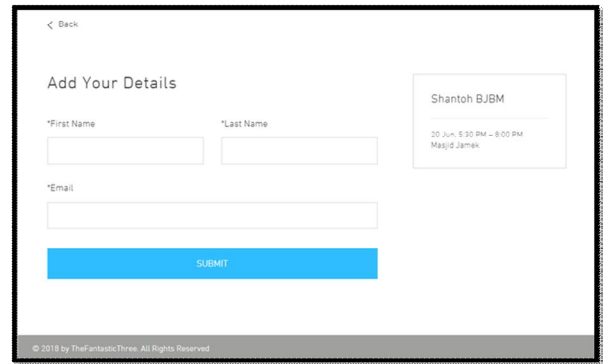
- Platform to help visitors to easily make donations.
- Figure 5 shows the donation made earlier successfully stored in the database specifically created for Payment.



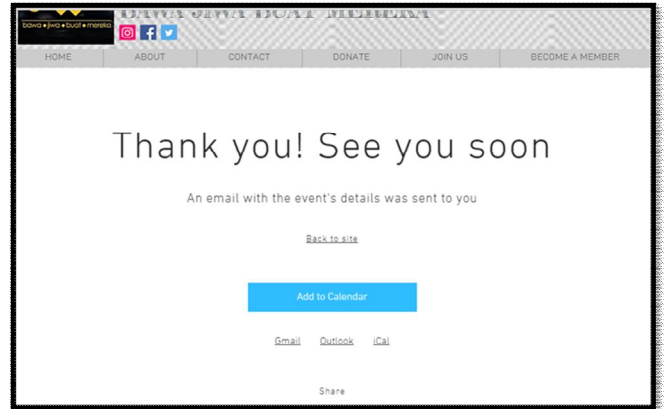
**Figure 5: Database Page**

- **Join Us**

- Visitors can see upcoming events and register to become a volunteer.

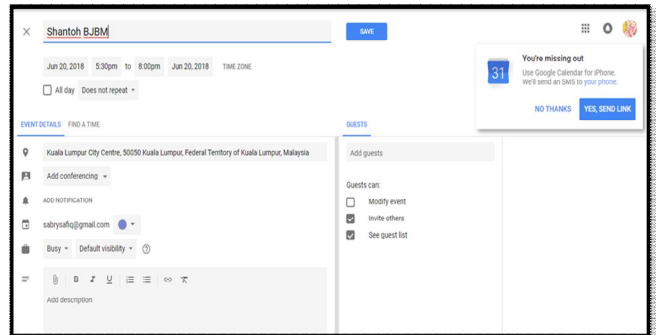


**Figure 6: Registration Page Details Contents**

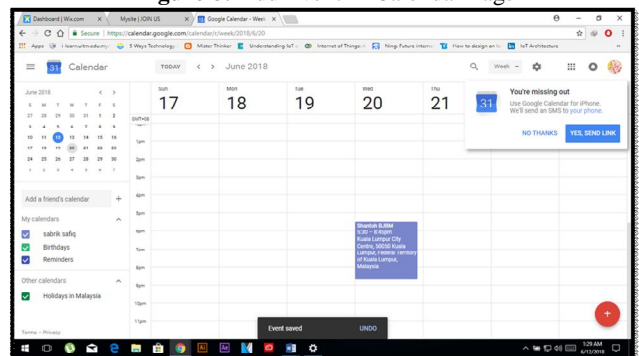


**Figure 7: Calendar Interact Page**

- After registering (Figure 6) complete to become a volunteer, they can directly set in the google calendar to notify them in the future (Figure 7, Figure 8, and Figure 9).



**Figure 8: Add Event in Calendar Page**



**Figure 9: Event Successfully Updated in Calendar Page**



- Become A Member

- Visitors can become members and will receive notification for events in the future. The database volunteer page is as shown in Figure 10.

ID	Title	FirstName	LastName	PhoneNumber	email
1		SITI	KALSOM	0192952141	KALSOM@gmail.com
2		Ajha	Mazuki	0123456789	Ajha@gmail.com
3		Rozita	Che Wan		rozita@gmail.com
4		Hilary	Ais		Hilary@gmail.com
5		sabri	saifi		sabri@gmail.com

Figure 10: Database Volunteer Page

## 5.0 CONCLUSION

The main objective of this research is to apply the Soft System Methodology (SSM) in the development of a community IT-based project. The poverty tramps at Masjid Jamek, Kuala Lumpur is being selected as a case study. There are several events and activities being implemented by the Non-Government Organization (NGO) and communities to help the tramps in the form of home, food, clothes, and job. However, there are a lack of synergy of efforts from communities and NGOs.

More opportunities should be given to the communities in terms of having access to the activities and events and programs organized by the Non-Government Organization (NGO). The percentage of poverty among the tramps can be reduced if have the right digital platform is being utilized by the Non-Government Organization (NGO) in getting donations from communities. As a result, a prototype website is suggested as proof of concept for further official implementation considerations by the authorities and related stakeholders.

Future work may be involved in applying Soft System Methodology (SSM) in other diverse development of community IT-based projects that may be applicable such as for online prescription system [9], solar-wind hybrid system [10], waste bin management system [11], computer vision system [12], emotion recognition system [13], interactive voice response system [14] and battery energy storage system [15].

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