



# Tzu Chi Foundation

## Environmental Protection Missions (SROI) Analysis Report

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## Tzu Chi Foundation Environmental Protection Missions (SROI) Analysis Report

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Awarded 11/04/2023



Signed

Mr Ben Carpenter  
Chief Executive Officer  
Social Value International



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## Summary

The Tzu Chi Foundation (hereinafter referred to as Tzu Chi) has begun its environmental protection missions since 1990. Tzu Chi currently has over 270 environmental protection stations around Taiwan, and is not only involved in the recycling business, but also promotes the concept of "cleaning the source, love the earth by protecting environment" by environmental education promotion, energy saving and carbon reduction, circular economy, waste reduction, vegetarian, etc., We hope to arouse people's awareness of environmental protection and cherish the earth's resources. At the same time, Tzu Chi connects the resource network of the community, the environmental protection stations allow neighbors to report their needs, and provides assistance to families with economic or medical needs in the community.

This project uses the activities of "Environmental protection missions" in 2020 as the scope of evaluation and conduct classification and calculation. The overall SROI of Tzu Chi's environmental protection missions in 2020 was 6.34. It means for every NT\$1 of input in Tzu Chi's environmental protection missions, NT\$6.34 in social benefits will be generated.

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# I. Analytical Structure and Description of SROI

## 1.1 Description of SROI

The analysis of Social Return on Investment (SROI<sup>1</sup>) is derived and extended from Cost Benefit Analysis (CBA) and applies the Theory of Change as its core for the measurement of changes and impact on the stakeholders from the implementation of a project. The results of the measurement will be represented with a monetary value. For example: a project with an SROI ratio of 3.5 indicates that every dollar invested in the project will create a value of 3.5 dollars for the stakeholders and provide social benefits.

The evaluation of SROI includes two types such as the "forecast type" and "evaluation type" depending on the type of project. The "forecast type" mainly evaluates projects that are still in the planning phase prior to the project implementation, to understand the possible social impact and benefit of the project in advance. The "evaluation type" assesses the implemented projects to practically understand the social impact and benefit created by the investment of the project.

## 1.2 The analytical principles of SROI

An SROI analysis focuses on the measurement of intangible value of a project and monetization. Therefore, the entire evaluation process must follow the seven principles below to ensure that the entire analysis process and results fulfill the evaluation foundation of SROI that is a conservative evaluation without over-claims. The relevant principles are explained below:

### 1. Principle 1- Involve stakeholders:

Identify stakeholders and involve stakeholders in the SROI analysis process, to effectively understand the impact and value created by the project.

### 2. Principle 2- Understand what changes

Articulate how change is created and evaluate its impact through evidence gathered (including positive and negative changes as well as those that are intended and unintended).

### 3. Principle 3- Value the things that matter

Financial proxy indicators should be used to recognize the value of the outcomes and to give a voice to those excluded from the markets but who are affected by activities.

### 4. Principle 4- Only include what is material

Determine what information and evidence must be included in the accounts to give a true and fair picture, such that stakeholders can draw reasonable conclusions about impact.

### 5. Principle 5- Verify the results

The SROI analysis inevitably involves subjectivity and thus appropriate independent assurance is required to help assess whether the SROI analysis and decision were reasonable.

### 6. Principle 6- Be transparent

Document and explain the identified stakeholders, outcomes, financial proxy indicators and benchmarks in the analysis process. The result of analysis will be more credible when the processes are more transparent.

### 7. Principle 7- Do not over-claim

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<sup>1</sup>Companies generally view Social Return on Investment (SROI) as the return on their investments in charity, but the projects implemented by the Tzu Chi Foundation focus on the impact of charity, so the wording used in the Chinese translation was adjusted.

Exclude the unnecessary factors and only claim the impact caused by the activity.

### 1.3 SROI analysis steps

The SROI analysis process includes five major steps. The main structure is as shown in the following diagram and the brief description is as follows.



#### 1. Plan & Set objectives

In the beginning phase of the project, the SROI projects will be identified and prioritized for the implementation of the SROI evaluation; in general, the selection is based on the potential impact, sufficiency in data and long-term planning of the projects. For the identified projects, conduct the analysis of potential changes created by the overall project objectives (what problem this project is solving), key stakeholders and projects, then establish a Stakeholder Engagement Map to focus on the evaluation of possible impact on stakeholders created by the projects.

#### 2. Map impacts

After confirming the implementation scope of the project, the inputs, outputs, results, and impact of the project shall be identified. The inputs of the project, such as the dedicated resources of the project, including money and time; the outputs of the project, including activities created by the inputs; the results of the project refer to the immediate effects such as improvement of a family's financial situation; the impact of the project refers to the direct or indirect impact in the long-term implementation of the project, such as enhancement of self-confidence and sense of spiritual satisfaction. Then establish an impact map of the project, through the indicator evaluation on the inputs, outputs, results, and impact.

#### 3. Collect data

Collect relevant data, supporting information and financial proxy indicators required for evaluation based on the preliminary analysis framework confirmed in the preceding step 1 and step 2. The data collection methods include but are not limited to questionnaires, telephone interviews, interviews, analysis of secondary data, etc. and the corresponding financial proxy indicators will be stipulated according to the results of data collection, to evaluate the results of SROI.

#### 4. Analyze impacts

This stage aims to identify other factors that affect the results of the project and conduct the sensitivity analysis to prevent over-claim. These factors include the unnecessary factors, substitution factors and attribution factors, etc. Moreover, calculate the future impact of the project as a concern of the decline factors and evaluate the annual cost-benefit discount base period to calculate the SROI.

#### 5. Evaluate

Review and verify whether the overall benefits created by the project are in accordance with the expected proposal according to the qualitative and quantitative information feedback from the stakeholders of the project as well as the evaluation process and results of the SROI project and propose the direction of improvement for the overall project based on the social benefits identified by the SROI results.

## 1.4 limitation on the SROI analysis

The overall evaluation process of SROI and the evaluation and calculation of social value include the subjective feelings and judgments of stakeholders. The evaluation method is not a conventional predictive model of financial analysis. This project collected the level of changes of impact from the project according to the interviews of the main group, one-on-one interviews and questionnaire surveys and conducted relevant evaluation based on the conservative principles; however, the results may be different due to the differences in the involved parties, or the implementation procedures of projects and different financial proxy indicators will be adopted due to differences in the content and nature of projects. Therefore, the SROI values of different types of projects or the same types of projects without identical or the same implementation procedures or project nature cannot be directly compared.

## II. Project Introduction

### 2.1 Contents and objectives of the project

The Tzu Chi Foundation (hereinafter referred to as Tzu Chi) was founded in 1966 by Master Cheng Yen in Hualien. The Tzu Chi Foundation is a Buddhist charity foundation with humanitarianism efforts around the world. It upholds the Buddha's belief of "unconditional compassion and universal sympathy" and gradually develops the "Four Missions, Eight Footprints" of charity, medical care, education, humanities, international disaster relief, bone marrow donation, community volunteers, and environmental protection.

Environmental protection has become an important issue due to the growingly severe climate change and excessive resource consumption in recent years. Master Chen Yen mentioned "use the hands you are clapping with for environmental protection" in 1990, and Tzu Chi has begun its environmental protection missions ever since. Tzu Chi took the lead by establishing environmental protection stations when the concept of recycling had not yet been popularized at the time, and it called on people to become environmental protection volunteers to promote recycling. Environmental protection stations are Tzu Chi's places of enlightenment in communities, and the majority are provided by communities free of charge to collect recyclables. They serve as a venue for the public to understand Tzu Chi, understand environmental protection, and further dedicate their efforts to environmental protection.

Tzu Chi believes that aside from environmental protection practices of individuals, concepts of environmental protection can only strike root through education starting from a young age. Hence, the function of environmental protection stations gradually transformed into locations that also provide environmental education, teaching community residents how to sort their trash and make environmental protection actions a part of daily life. National Sun Yat-sen University designated Bagualiao environmental protection station as an educational space for its environmental education courses in 1999. The place became Tzu Chi's first environmental education station, the model was gradually expanded throughout Taiwan, and there are currently over 110 environmental protection stations in Taiwan open to visits by schools and communities. Tzu Chi began offering lecturer training courses in 2011 to fully communicate Tzu Chi's environmental protection concepts and the right knowledge to visitors. Currently, 13 training courses have been offered and trained 1,215 internal lecturers, of which 12 became certified environmental education lecturers of the Environmental Protection Administration.

Approximately 56% of Tzu Chi's environmental protection volunteers are 65 years old and above. Tzu Chi formulated numerous service plans in recent years so that environmental stations will not only serve as a location for promoting environmental education in communities, but also to provide a wide variety of community services. Tzu Chi brought together Tzu Chi University, Tzu Chi Hospital,

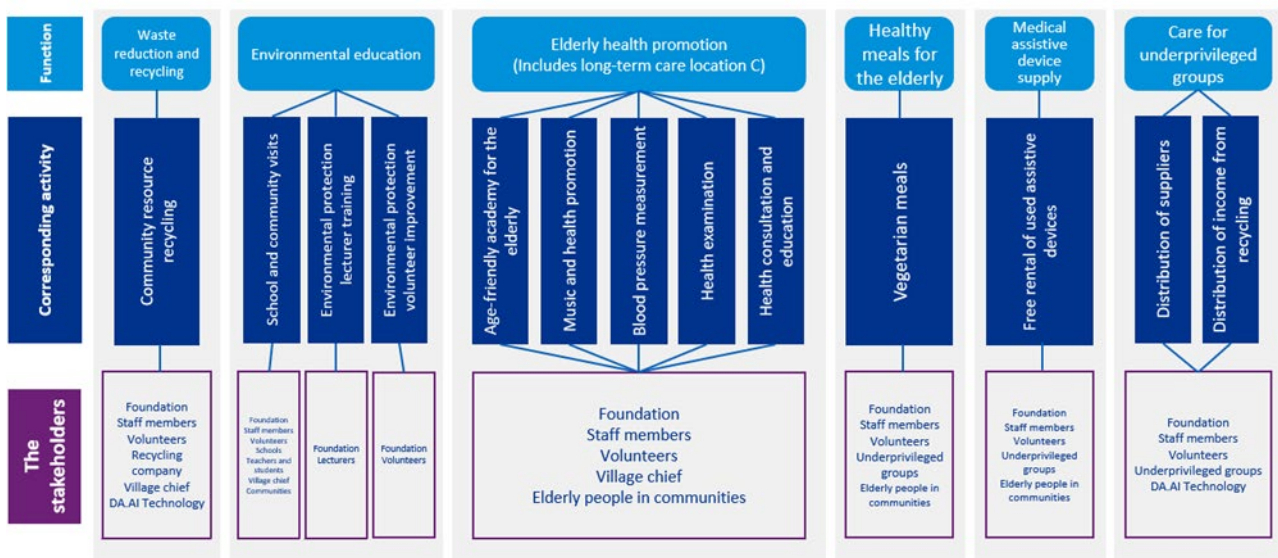


and experts and scholars in planning related services, including health examination, blood pressure measurement, healthy vegetarian meals, and courses for delaying disability, in hopes of promoting elderly health and community participation. It not only matches the concept of care locations promoted by the government, but also responds to Tzu Chi's core concept of localized community care.

Aside from recycling, Tzu Chi also accepts used assistive devices that people no longer use. The assistive devices are carefully cleaned, disinfected, and repaired by environmental protection volunteers, and then rented out to people in need, extending the service life of these assistive devices, while lifting the economic burden on underprivileged families.

Tzu Chi currently has over 270 environmental protection stations around Taiwan, and is not only involved in the recycling business, but also promotes the concept of "cleaning the source, love the earth by protecting environment" by environmental education promotion, energy saving and carbon reduction, circular economy, waste reduction, vegetarian, etc., We hope to arouse people's awareness of environmental protection and cherish the earth's resources. At the same time, Tzu Chi connects the resource network of the community, the environmental protection stations allow neighbors to report their needs, and provides assistance to families with economic or medical needs in the community. Functions, activities, and related stakeholders of Tzu Chi's environmental protection missions are described below:

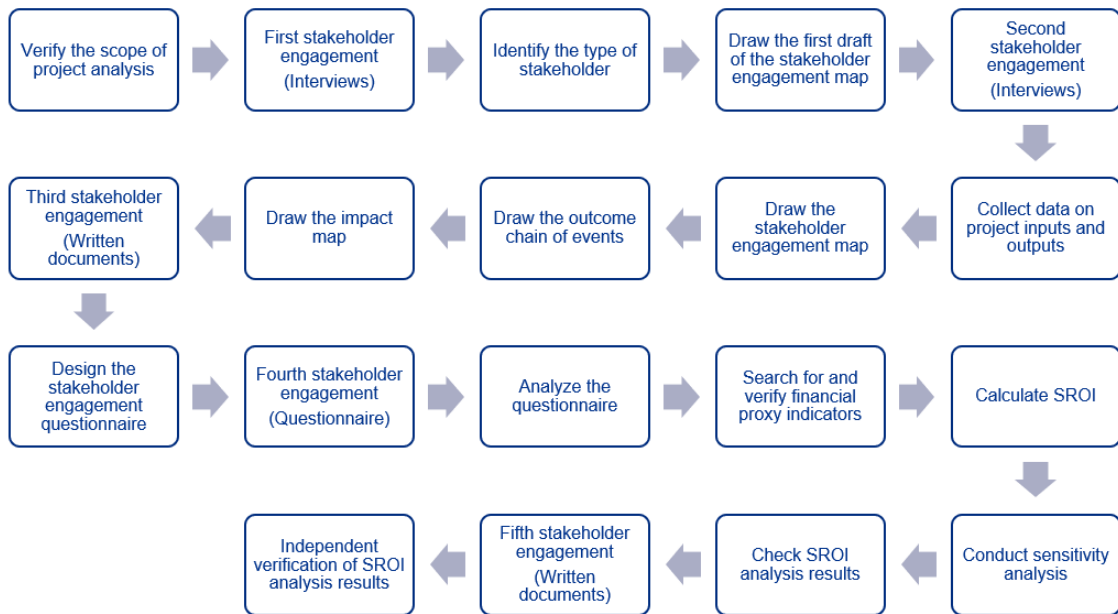
Figure 2.1-1 Functions, activities, and corresponding stakeholders of environmental protection missions



## 2.2 Project analysis process

Detailed analysis procedures, which follow the SROI analysis procedures mentioned in 1.3 and reference the SROI analysis principles mentioned in 1.2, are presented in the form of a flowchart, as shown in Figure 2.2-1 below:

Figure 2.2.-1 Project analysis process



## 2.3 Description of SROI analysis scope

An evaluative SROI is conducted for the analysis. The scope of the project evaluated is 2020, and the evaluation focuses on the changes brought by the abovementioned activities to core stakeholders. The project's outcomes in 2020 are evaluated, and consider drop-off and duration to calculate the outcome's future value, but not exceeding 5 years (excluding the year of the activity). The number of years calculated for each outcome is mainly based on results of the questionnaire survey during stakeholder engagement.

## 2.4 Related SROI Literature Research

In addition to conducting the SROI evaluation based on the SROI analysis steps, this evaluation also refers to the certified SROI reports or research reports that are similar to the six major activities of Tzu Chi's environmental protection missions in the Social Value UK database; these reports are used as reference for the overall assessment and the relevant reference information of research papers are as shown in the following table.

Table 2.4-1 The reference information of relevant SROI researches in this project

Research institute/Project organization	Documents and researches/ project name	Author	Overview of the contents	Date
Charity Finance Group/ ACEVO、 New Philanthropy Capital	Principles Into Practice: How charities and social enterprises communicate impact	Katherine Smithson and Jane,TullyTris Lumley,Nick Carey	How do charity organizations and social enterprises exert their influence and show their organizational value	2016
Greenspace Scotland	Social Return on Investment: Working with community groups	greenspace scotland	Return on community investments SROI analysis is conducted through 10 community organizations	2016
Leicestershire County Council	Forecast SROI of supporting the Community Meals Service in Leicestershire	Joelle Bradly	Expected SROI performance from supporting Leicestershire community meal services	2016
Tzu Chi Foundation	Analysis Report of “Banqiao Jing Si Hall” Social Return on Investment	Tzu Chi Foundation	SROI is calculated using Tzu Chi's "Banqiao Jing Si Hall" activities as the scope evaluation	2020

### III. Stakeholder involvement

Stakeholder involvement is not only one of the seven principles of SROI, but also a crucial procedure in SROI analysis. A total of five stages of stakeholder engagement were carried out during the analysis, including:

Order of engagement	SROI stage	Stakeholder involvement method	Stakeholder groups involved	Purpose
First	Identification and verification of stakeholders	Interviews	Project initiators	Identify all potential stakeholders involved in the project through interviews with the project initiator.
Second	Identification and verification of benefits	Interviews	Project initiators, project implementers, project beneficiaries	Core stakeholders are engaged through face-to-face or telephone interviews to identify the outcomes brought by the project to stakeholders.
Third		Written documents		The outcome chain of events and impact map are drawn after verifying the types and benefits of stakeholders. The process of changes is verified with project initiators via written documents supported by interviews, and then the outcomes are defined.
Fourth		Questionnaire		Stakeholders are engaged through a questionnaire survey to verify if outcomes do indeed exist and are material. Information on adjustment factors and some financial proxy indicators are collected at the same time.
Fifth	Analysis process and outcome validation	Written documents		Project initiators are mainly engaged through written documents supported by interviews, in order to verify analysis results.

#### 3.1 Identification of stakeholders

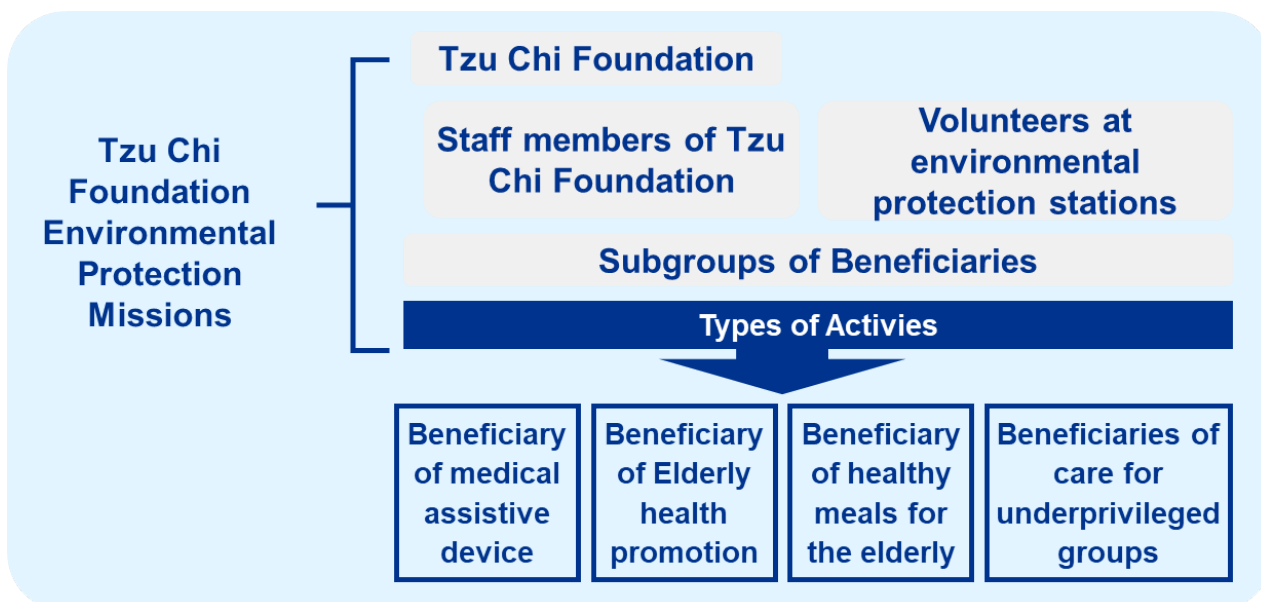
Stakeholder involvement is a very important process for SROI evaluation. This project's stakeholder identification process is based on discussions between implementation units of Tzu Chi's environmental protection missions. Starting with the project implementation process, the stakeholders involved in the process are discussed, and then core stakeholders are identified based on the level and importance of project participation by each of the stakeholders. Stakeholders can be divided into the "activity initiators" (project initiators), "activity implementers" (the implementation units of the project), and "activity beneficiaries" based on their characteristics. Please refer to Tables 3.1-1, 3.1-2 and 3.1-3 for the identification of stakeholders involved in related activities of Tzu Chi's environmental protection missions.

Table 3.1-1 Stakeholders of Tzu Chi's environmental protection missions included in the analysis

Tzu Chi Foundation	Staff members of Tzu Chi Foundation	Volunteers at environmental protection stations
Beneficiaries	Staff members of Tzu Chi Culture and Communication Foundation	Staff members of DA.AI Technology
Village chief	Recycling company	Visiting groups

The 1st stakeholder engagement (interview) identified nine types of potential stakeholders associated with the Tzu Chi Foundation Environmental Protection Missions. The beneficiaries should include four types of subgroups of stakeholders, including beneficiary of medical assistive device and beneficiary of Elderly health promotion, beneficiary of healthy meals for the elderly, beneficiaries of care for underprivileged groups. In addition, according to the information collected by engagement, this analysis divides stakeholders into "project initiators", "project implementers", "project beneficiaries" and "others" according to their roles in the project. Table 3.1-2 presents the stakeholders who need to be included in the analysis, and Table 3.1.3 respectively explains the reasons for the stakeholders not included in the analysis.

In the scope of this project evaluation, the Tzu Chi Environmental Protection Station is not only a resource recycling station, but also a multi-functional community service station, providing health checks for the elderly, healthy vegetarian meals, and delaying disability courses, and receiving second-hand assistive devices, clean and disinfect them, then leased to people in need, providing care and assistance to underprivileged groups in the community with economic and medical needs. The beneficiaries of the above-mentioned activities are all direct beneficiaries of Tzu Chi's "Environmental Protection Missions". Through interviews, we divided 4 subgroups into "beneficiary of medical assistive device", "beneficiary of Elderly health promotion", "beneficiary of healthy meals for the elderly", "beneficiaries of care for underprivileged groups ". After we deeply understand and analyze the connotation differences of the change results, we will analyze the subgroups independently. The diagram is as follows:



According to interviews and investigations, in this case, the beneficiaries of the project participated in different types of activities in " Environmental Protection Missions ", and understood the different experiences and feelings gained by the four groups. "Beneficiary of medical assistive device " borrows second-hand medical assistive devices for free through the Tzu Chi medical assistive

device lending platform to improve their quality of life, reduce financial burdens, and enhance their sense of psychological and physical security; "Beneficiary of healthy meals for the elderly" benefited from free and nutritionally balanced vegetarian meals, reducing their financial burden and improving their health; "Beneficiary of Elderly health promotion" participated in the health checks and disability delay courses provided by the project to improve the health and social participation; "Beneficiaries of care for underprivileged groups" received supplies or cash distribution, solved their living difficulties and improved their psychological status. Therefore, the above-mentioned changes are different, so this stakeholder group is further classified. After further investigation, it was found that many "beneficiaries of healthy meals for the elderly", "beneficiaries of Elderly health promotion", and "beneficiaries of care for underprivileged groups" joined as volunteers at environmental protection stations (project implementers) after receiving assistance. To avoid double counting and over-claiming of results, these subgroups of beneficiaries are excluded. Regarding "Beneficiary of medical assistive device," although there are differences in the types of medical assistive device they rent, it was found during the interview that there is no difference in the changes they experience as a result. Therefore, they will not be further divided into smaller subgroups.

For future research and improvement, it is recommended to understand further the changes that may be experienced by stakeholders based on different characteristics (such as gender, education level, economic status, and location)

Table 3.1-2 Stakeholders of Tzu Chi's environmental protection missions included in the analysis

Major stakeholders		Reason for inclusion
Project initiators	Tzu Chi Foundation	The main units that plan and implement Tzu Chi Foundation's environmental protection missions. Included because they input funds and resources and enjoy the benefits of having a better image.
Project implementers	Staff members of Tzu Chi Foundation	Included because they are the main planners and implementers of the project, initiate changes, and indirectly benefit.
	Volunteers at environmental protection stations	The main implementers of the project; the definition includes volunteers that are not certified (the same definition is used when volunteers at environmental protection stations are mentioned in subsequent parts). Included because they assist the completion of environmental protection missions and are indirect beneficiaries.
Project beneficiaries	Beneficiary of medical assistive device	Rent used assistive devices free of charge on Tzu Chi's assistive device rental platform to improve their lives. Included because they are direct beneficiaries of the project.
	Environment	Environment was not a stakeholder directly identified. However, due to the recycling work of Environmental Protection Stations, outcome of carbon reduction has been identified. Reducing carbon emissions can mitigate climate change, and protect the environment. Therefore, included the environment as a stakeholder.
Others	Staff members of Tzu Chi Culture and Communication Foundation	Indirectly impacted by the project and produced over a hundred in-depth reports on volunteers. Included because they work closely with environmental protection stations.
	Staff members of DA.AI Technology	Indirectly impacted by the project and mainly assisted with reception during environmental protection seminars, visiting groups, and planned the technology certification and registration system. Included because they work closely with environmental protection stations.

Table 3.1-3 Stakeholders of Tzu Chi's environmental protection missions not included in the analysis

Stakeholders not included in the analysis		Reason for exclusion
Project beneficiaries	Elderly health promotion, healthy meals for the elderly,	Tzu Chi's environmental protection stations not only serve as a location for promoting environmental education in communities, but also to provide a wide variety of community services. Services include health

	beneficiaries of care for underprivileged groups	examinations, blood pressure measurement, healthy vegetarian meals, and courses for delaying disability for elderly people in communities, in hopes of assisting families with economic and medical needs in communities. After interviewing beneficiaries of these services, we found that most became environmental protection volunteers after receiving assistance. Excluded to avoid double counting and over-claiming.
Others	Village chief	Cooperates with environmental protection stations, but the cooperation overlaps considerably with their work, and was excluded because the impact was determined to be insignificant.
	Recycling company	Relationship with environmental protection stations is based on the recycling business, does not know much about Tzu Chi's environmental protection stations, and does not have any significant benefits from participating in related operations. Hence, recycling companies were excluded.
	Visiting groups	Excluded because most groups only visit once and do not engage in more in-depth interactions with environmental protection stations.

## 3.2 Stakeholder Engagement Map

After identifying the main stakeholders who are involved in each of the activities based on the afore mentioned contents, it is necessary to conduct an engagement with the stakeholders to verify the changes caused by each activity to further understand and confirm the changes that impact the stakeholders after participating in the activities. Before conducting the engagement, the project is required to review the main objectives of each activity in advance and identify the expected changes in the project by the core stakeholders, to generate a Stakeholder Engagement Map as a guide for subsequent engagement. The Stakeholder Engagement Map for each of the main activities is described in Table 3.2-1.

Table 3.2-1 Stakeholder Engagement Map for Tzu Chi's environmental protection missions

Major stakeholders		Expected changes
Project initiators	Tzu Chi Foundation	<ul style="list-style-type: none"> <li>• Improve Tzu Chi's image</li> </ul>
Project implementers	Staff members of Tzu Chi Foundation	<ul style="list-style-type: none"> <li>• Increase knowledge of environmental protection</li> <li>• Improve project management ability</li> <li>• Improve communication and coordination ability</li> <li>• Improve sense of achievement at work</li> </ul>
	Volunteers at environmental protection stations	<ul style="list-style-type: none"> <li>• Better family relationships</li> <li>• Increase knowledge of environmental protection</li> <li>• Improve individual sense of achievement</li> <li>• Improve activity planning and execution abilities</li> <li>• Improve health</li> <li>• Improve communication and coordination ability</li> <li>• Enhance the sense of organizational identification and sense of belonging</li> </ul>
Project beneficiaries	Beneficiary of medical assistive device	<ul style="list-style-type: none"> <li>• Reduce financial burden</li> <li>• Improve quality of life (Improving mobility)</li> <li>• Enhance sense of psychological and physical safety</li> <li>• Improve positive emotions</li> </ul>
	Environment	<ul style="list-style-type: none"> <li>• Carbon reduction results</li> </ul>
Others	Staff members of Tzu Chi Culture and Communication	<ul style="list-style-type: none"> <li>• Increase knowledge of environmental</li> </ul>



Major stakeholders		Expected changes
	Foundation	<p>protection</p> <ul style="list-style-type: none"> <li>• Improve professional knowledge and abilities</li> <li>• Improve sense of achievement at work</li> <li>• Improve communication and coordination ability</li> </ul>
	Staff members of DA.AI Technology	<ul style="list-style-type: none"> <li>• Increase knowledge of environmental protection</li> <li>• Improve professional abilities related to environmental protection projects</li> <li>• Enhance the sense of spiritual satisfaction</li> </ul>

### 3.3 Engagement results of stakeholders - interviews

Core stakeholders of this project were interviewed to verify possible changes in internal and external core stakeholders after participating in related activities of Tzu Chi's environmental protection missions, to respond to contents of the Stakeholder Engagement Map, and to verify feedback from the participants of each activity. Interview arrangements and interview information are described in Table 3.3-1. The outcomes of different core stakeholders in the overall process of the project are further summarized based on interview results. Please see Appendix 1 for an example of an interview outline. The process of defining outcomes mainly involves determining the causal relationship between outcomes based on the information provided by stakeholders during interviews. The outcome chain of events for Tzu Chi's environmental protection missions is then drawn on this basis. The chain of events is used to clarify the process of changes in each core stakeholder group, so that primary outcomes can be clearly defined. See Appendix 3 for the detailed outcome chain of events.

Table 3.3-1 List of stakeholders involved in Tzu Chi's environmental protection missions that were interviewed

The stakeholders	Number of interviewees	Interview method	Date of interview
Tzu Chi Foundation	1	Interviews	2021/04
Staff members of Tzu Chi Foundation	11	Interviews via video chat	2021/06
Volunteers at environmental protection stations	350	Interviews	2021/05 - 10
Beneficiary of medical assistive device	43	Face-to-face, telephone interviews	2021/09 – 12
Staff members of Tzu Chi Culture and Communication Foundation	4	Interviews via video chat	2021/07
Staff members of DA.AI Technology	3	Interviews via video chat	2021/07
Recycling company	10	Interviews via telephone and video chat	2021/08 - 12
Village chief	7	Interviews via telephone and video chat	2021/08
Visiting groups of environmental protection stations	3	Interviews via video chat	2021/07 – 11

### 3.4 Engagement results of stakeholders – survey questionnaire

To be able to manage the results of the activity after the interview, we designed a corresponding SROI survey questionnaire to collect feedback from the stakeholders. In addition to further verifying the occurrence of the expected changes for the activities, we also designed corresponding topics to understand the level of changes in stakeholders and collect information regarding sensitivity factors to be used as a reference for subsequent analysis. The design of relevant questionnaires is based on the characteristics of each activity. The questionnaires were distributed to stakeholders who participated in the activities. See Appendix 2 for an example of such questionnaires. In general, the number of questionnaires for each activity is collected to achieve a confidence level of 95% with the maximum sampling error within  $\pm 10\%$ . The subjects for distributing the questionnaires are the primary stakeholders identified in the afore mentioned activities, as shown in Table 3.4-1.

Table 3.4-1 Questionnaire survey on Tzu Chi's environmental protection missions

Major stakeholders		Population	Number of effective questionnaires collected
Project initiators	Tzu Chi Foundation	1	1
Project implementers	Staff members of Tzu Chi Foundation	6	6
	Volunteers at environmental protection stations	34,422	402
Project beneficiaries	Beneficiary of medical assistive device	4,233	106
Others	Staff members of Tzu Chi Culture and Communication Foundation	4	3
	Staff members of DA.AI Technology	3	3

The fourth stakeholder engagement, which mainly conducts a questionnaire survey, has an error detection mechanism. After questionnaires are collected, the effectiveness of questionnaires is first examined, and statistics are only compiled after ineffective questionnaires are excluded. After compiling statistics, another member of the analysis team will check if there are any errors in the data, to ensure that SROI is correctly calculated.

### 3.5 Indicator Setting

The purpose of the 4th stakeholder engagement (questionnaire) was to collect information on adjustment factors in addition to verifying whether the defined outcomes did occur and the amount of change for each outcome. For each defined outcome, the analysis set a quantitative indicator for each defined outcome. Information on the amount of change and the evidence of occurrence was collected through the questionnaire. Quantitative indicators should be as objective as possible. Regarding outcomes relate to knowledge, and mental well-being improvement, such knowledge of environmental protection, spiritual fulfillment, or sense of accomplishment at work, stakeholders were asked to score the extent of an outcome on a scale of 0% to 100%. Each outcome indicator was averaged based on the results of the questionnaire. The amount of change is considered to be significant when it is higher than 50%. "Improve professional abilities related to environmental

protection projects" (38%) of " Staff members of DA.AI Technologys") will not be included in the calculation of results. The results are also provided in written documents to the project initiators to confirm that the setting of the relevant indicators does not involve any excessive claims. Each outcome indicator is listed in Table 3.5-1.

Table 3.5-1 List of Outcome Indicators

Key Stakeholders		Outcomes	Indicators	Outcome Indicators
Project initiators	Tzu Chi Foundation	Improve Tzu Chi's image	Number of Media exposure	News 331 TV 83
Project implementers	Staff members of Tzu Chi Foundation	Increase knowledge of environmental protection	Degree on the Increased knowledge of environmental protection (%)	96%
		Improve project management ability	Degree of the Improvement of project management ability (%)	63%
		Improve communication and coordination ability	Degree of the Improvement of communication and coordination ability (%)	58%
		Improve sense of achievement at work	Degree of the increase in sense of accomplishment in work (%)	71%
Project implementers	Volunteers at environmental protection stations	Improve communication and coordination ability	Degree of the Improvement of communication and coordination ability (%)	60%
		Improve individual sense of achievement	Degree of the Improvement of individual sense of achievement (%)	68%
		Enhance the sense of organizational identification and sense of belonging	Degree of the Enhancement of the sense of organizational identification and sense of belonging (%)	72%
		Improve activity planning and execution abilities	Degree of the Improvement of activity planning and execution abilities (%)	60%
		Better family relationships	Degree of the enhancement of family relationship (%)	65%
		Increase knowledge of environmental protection	Degree on the Increased knowledge of environmental protection (%)	77%
		Improve health	Degree of the	62%

			Improvement of health (%)	
Project beneficiaries	Beneficiary of medical assistive device	Reduce financial burden	The value of assistive devices	63,102,000 NTD
		Improve quality of life (Improving mobility)	Degree of the Improvement of quality of life (%)	59%
		Enhance sense of psychological and physical safety	Degree of the Enhancement of sense of psychological and physical safety (%)	68%
		Improve positive emotions	Degree of the Improvement of positive emotions (%)	68%
Project beneficiaries	Environment	Carbon reduction results	Carbon reduction (ton)	133,135
Others	Staff members of Tzu Chi Culture and Communication Foundation	Improve communication and coordination ability	Degree of the Improvement of communication and coordination ability (%)	75%
		Increase knowledge of environmental protection	Degree on the Increased knowledge of environmental protection (%)	75%
		Improve sense of achievement at work	Degree of the increase in sense of accomplishment in work (%)	75%
		Improve professional knowledge and abilities	Degree of the Improvement of professional knowledge and abilities (%)	75%
	Staff members of DA.AI Technology	Improve professional abilities related to environmental protection projects	Degree of the Improvement of professional abilities related to environmental protection projects (%)	38%
		Increase knowledge of environmental protection	Degree on the Increased knowledge of environmental protection (%)	50%
		Enhance the sense of spiritual satisfaction	Degree of the Enhancement of the sense of spiritual satisfaction (%)	58%

### 3.6 Materiality Verification

After the outcomes brought forth by the project to the key stakeholders and the amount of

change were identified through the aforesaid stakeholder engagements, the SROI analysis proceeded to verify the materiality of the outcomes based on the principle: Only includes what is material. The materiality of outcomes has two aspects: relevance of outcomes and significance of outcomes. The principles of materiality identification are stated below.

Regarding the relevance of outcomes, the benefits identified in the analysis were based on the stakeholders' direct feedback on open-ended questions during their interviews; the outcomes were defined by the saturation of the collected feedback, and such saturation hinged on the consistency of information provided by the stakeholders. For example, volunteers at environmental protection stations mentioned that they increased knowledge of environmental protection through communication with other volunteers. Such information gradually reached a saturation point as different interviewees made the same statement. As a result, "Increase knowledge of environmental protection" was included in the process of defining the outcomes. Another example, the interviewees who are beneficiaries of medical assistive device mentioned that "with the help of the medical assistive device, they are able to have mobility closer to that of an average person, which improves their quality of life." Therefore, the outcome of "Improve quality of life (Improving mobility)" is defined. In addition, the definition of "Reduce financial burden" is based on their statement that "borrowing medical assistive device has significantly reduced my financial burden, which is really helpful." Overall, the outcomes defined in the analysis were derived from the stakeholders who had long-term involvement in Environmental Protection Missions; the stakeholders' involvement and the consistency of information provided by the same type of stakeholders were the bases for determining whether the outcomes were objective and relevant.

While the relevance of outcomes focused on the verification of qualitative information, the significance of outcomes hinged on the verification of quantitative data. For outcomes defined in the chains of events, stakeholders were asked in the questionnaire whether the outcomes did occur. If more than 85% of the respondents select "yes," the outcomes are verified to be prevalent among all types of stakeholders and thus significant. Based on the results of the questionnaire, "Improve professional knowledge and abilities", and "Improve sense of achievement at work" of Staff members of Tzu Chi Culture and Communication Foundation, and "Improve professional abilities related to environmental protection projects" of Staff members of DA.AI Technology do not reach 85%, therefore, these outcomes were not included in the analysis. For stakeholders that selected as "not occurred" in terms of outcomes, there may be other changes that have occurred for them. It is suggested that in future analysis and research, additional questions can be added to understand whether these stakeholders have experienced other changes. For the significance of each outcome, refer to Table 3.6-1.

Table 3.6-1 Significance of Outcomes

Key Stakeholders		Outcomes	Significance of Outcomes
Project initiators	Tzu Chi Foundation	Improve Tzu Chi's image	100.00%
Project implementers	Staff members of Tzu Chi Foundation	Increase knowledge of environmental protection	100.00%
		Improve project management ability	100.00%
		Improve communication and coordination ability	100.00%
		Improve sense of achievement at work	100.00%
Project implementers	Volunteers at environmental protection stations	Improve communication and coordination ability	98.01%
		Improve individual sense of achievement	98.50%
		Enhance the sense of organizational identification and sense of belonging	99.50%

		Improve activity planning and execution abilities	86.32%
		Better family relationships	96.52%
		Increase knowledge of environmental protection	99.25%
		Improve health	97.90%
Project beneficiaries	Beneficiary of medical assistive device	Reduce financial burden	95.28%
		Improve quality of life (Improving mobility)	96.23%
		Enhance sense of psychological and physical safety	97.17%
		Improve positive emotions	95.28%
Project beneficiaries	Environment	Carbon reduction results	100.00%
Others	Staff members of Tzu Chi Culture and Communication Foundation	Improve communication and coordination ability	100.00%
		Increase knowledge of environmental protection	100.00%
		Improve sense of achievement at work	66.67%
		Improve professional knowledge and abilities	66.67%
	Staff members of DA.AI Technology	Improve professional abilities related to environmental protection projects	66.67%
		Increase knowledge of environmental protection	100.00%
Enhance the sense of spiritual satisfaction		100.00%	

## IV. Map of impacts

### 4.1 Input

Tzu Chi's inputs in its environmental protection missions in 2020 include project expenses in the amount of NT\$13,465,843, labor costs of Tzu Chi Foundation's staff members in the amount of NT\$3,068,040, and time cost of Tzu Chi volunteers in the amount of NT\$381,762,128. Project expenses include environmental education expenses in the amount of NT\$85,993, medical assistive device supply in the amount of NT\$817,099, elderly health promotion in the amount of NT\$39,611, and healthy meals for the elderly in the amount of NT\$12,523,140. Labor costs of Tzu Chi Foundation's staff members is calculated using the annual salary of 6 full-time staff members that engaged in environmental protection missions in 2020; time cost of Tzu Chi's volunteers was calculated using the minimum hourly wage of NT\$158 in Taiwan in 2020 multiplied by 2,416,216 hours.

Major stakeholders	Input item	Input amount (dollars)
Tzu Chi Foundation	Project expenses - Environmental education	85,993
	Project expenses - Medical assistive device supply	817,099
	Project expenses - Elderly health promotion	39,611
	Project expenses - Healthy meals for the elderly	12,523,140
Tzu Chi's staff members	Labor costs	3,068,040
Tzu Chi's volunteers	Total time cost of personnel	381,762,128
<b>Total input amount (NTD)</b>		<b>\$ 398,296,011</b>



## 4.2 Output

Outputs of Tzu Chi's environmental protection missions in 2020 mainly include the recycling volume of environmental protection stations around Taiwan, number of assistive devices rented out, and number of people that visited environmental protection stations, as summarized in Table 4.2-1-3.

Table 4.2-1 Recycling volume

Type	Weight (tons)
Paper	44,344
PET Bottle	4,311
Beverage pack	3,062
Iron	8,722
Steel	372
Aluminum	1,038
Copper	381
Scrap metal	1,044
Plastic	7,661
Plastic bag	3,620
Glass bottle	10,973
Battery	190
Old clothes	3,310
Others	487
<b>Total weight</b>	<b>89,514</b>

Table 4.2-1 Number of assistive devices rented out

Assistive device	Quantity
Electric patient bed/Patient bed	1,486
Air mattress	789
Oxygen generator	317
Mucus suction machine	236
Mist blower	82
Four-legged walker/Roller walker	606
Four-legged or single-legged canes	446
Regular wheelchair	1,410
Special wheelchair	332
Power wheelchair	56
Potty-chair	787
Diaper (box)	2
Other assistive devices	391
<b>Total – Various assistive devices</b>	<b>6,938</b>
<b>Number of households benefited</b>	<b>4,233</b>

Table 4.2-3 Number of people that visited environmental protection stations

Total number of visitors	13,014
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### 4.3 Impact Maps

Based on the results from the afore mentioned identification of stakeholders and engagement of stakeholders (interviews and questionnaires), this project can verify the expected outcomes of each activity on the stakeholders, and further understand the actual impact on stakeholders due to these outcomes. This assessment presents the chain of events for each activity through the impact map, to explain the causality between the inputs, outputs, outcomes of each activity and how an impact is created; we also refer to the SROI analysis principles for the reference of whether to include the outcomes for analysis. The two stages of stakeholder engagement not only verify the changes brought by the project to stakeholders, but also provide better understanding of the level of impact that these changes have on the stakeholders.

Table 4.3-1 Impact map of Tzu Chi's environmental protection missions

The stakeholders		Inputs			Outputs	Outcomes
Group	Population	Item	Converted amount			
Project initiators	Tzu Chi Foundation	1	Environmental education: 85,993; Elderly health promotion: 39,611; Medical assistive device supply: 817,099; Healthy meals for the elderly: 12,523,140	13,465,843	<ul style="list-style-type: none"> <li>Environmental protection stations around Taiwan recycled 89,514 metric tons</li> <li>A total of 13,014 people visited environmental protection stations around Taiwan</li> <li>6,938 assistive devices were rented out and 4,233 households benefited</li> </ul>	Improve Tzu Chi's image
Project implementers	Staff members of Tzu Chi Foundation	6	[Monthly salary of employees hired by the project] Environmental education, waste reduction and recycling, elderly health promotion, long-term care location C + healthy meals for the elderly	3,068,040		Improve sense of achievement at work; Improve communication and coordination ability; Improve project management ability; Increase knowledge of environmental protection
Project implementers	Volunteers at environmental protection stations	34,422	A total of 34,422 volunteers input 2,416,216 hours in 2020, and the minimum hourly wage of NT\$158 in 2020 was used for calculation	381,762,128		Improve communication and coordination ability; Improve individual sense of achievement; Enhance the sense of organizational identification and sense of belonging; Improve activity planning and execution abilities; Better family relationships; Increase knowledge of environmental protection; Improve health
Project beneficiaries	Beneficiary of medical assistive device	4,233	/	/		Reduce financial burden; Improve quality of life (Improving mobility); Enhance sense of psychological and physical safety; Improve positive emotions
Project beneficiari	Environment	1	/	/		Carbon reduction results
Others	Staff members of Tzu Chi Culture and Communication Foundation	3	/	/		Increase knowledge of environmental protection; Improve communication and coordination ability
Others	Staff members of DA.AI Technology	4	/	/		Increase knowledge of environmental protection; Enhance the sense of spiritual satisfaction

## V. Project Value Analysis

### 5.1 Establishment of evaluation indicators and financial proxy indicators

After the identification and engagement of stakeholders, impact marking and data collection, the next step of SROI analysis is to quantify the outcomes of related activities, which is the establishment of evaluation indicators and financial proxy indicators. The evaluation indicators are mainly used as the basis for the measurement of result occurrence and improvement level of results. This part of information mainly refers to the research papers and the analytical results of questionnaire survey of each activity.

For the selection and establishment of financial proxy indicators, Tzu Chi's environmental protection missions project mainly uses two monetization methods, namely the Revealed Preference Method and Well-being Valuation Method. Two methods were acquired from the literature. The financial proxies adopted in the analysis were established based on the following two principles to make sure that they would be reasonable and fully represent the value of the outcomes:

- Relevance with the content of the project: Whether the content of a financial proxy is relevant to the content of Tzu Chi's environmental protection missions project should be considered. The proxy should be excluded in case of irrelevance.
- Relevance with the process of changes: Whether the background or content of a financial proxy is similar to the process of changes stated by stakeholders should be considered based on the information acquired from the stakeholder engagements. The proxy should only be included if similarity holds.

In addition to the two principles above, if a financial proxy indicator uses a different currency and is from a different country, then it will be corrected using average exchange rate and purchasing power parity, to determine the closest actual value of the outcome. Financial proxy indicators are summarized in Table 5.1-1.

Table 5.1-1 Financial proxy indicators for Tzu Chi's environmental protection missions

Major stakeholders		Outcomes	Evaluation indicators	Financial proxy indicators (NTD)	Origin of indicator	Applicability of the indicator	Methodology
<b>Project initiators</b>	Tzu Chi Foundation	Improve Tzu Chi's image	Average price of commercials on cable TV	1,953,140	Cost of exposure on Cable TV and print media	There were 331 reports on the project on print media and 83 reports on TV in 2020. The average price of a commercial on cable TV and average price of a news report on print media in the 2020 Advertising Yearbook of Taiwan, the Republic of China were used for calculation.	Revealed Preference Method
<b>Project implementers</b>	Staff members at environmental protection stations	Increase knowledge of environmental protection	Tuition of private institutions in Taiwan for training a volunteer capable of explaining energy issues	500	Climate change energy initiative volunteer training	Staff members gain knowledge of environmental protection by participating in the project, which is similar to learning skills by participating in environmental education courses offered by private institutions	Revealed Preference Method
		Improve project management ability	Project management courses offered by private institutions in Taiwan	4,600	Courses of the Institute for Information Industry to "Improve project management ability"	Staff members improve their activity planning and execution abilities by participating in the project, which is similar to learning skills by participating in project management courses offered by private institutions	Revealed Preference Method
		Improve communication and coordination ability	Tuition for courses on communication skills offered by private institutions in Taiwan	4,500	"Communication and marketing course, interpretation training" of the Institute for Information Industry	Staff members improve their communication and coordination abilities by participating in the project, which is similar to learning skills by participating in courses on communication skills offered by private institutions	Revealed Preference Method
		Improve sense of achievement at work	Increased confidence/self-esteem	22,896	Evaluation of Social Return on Investment created through Gentoo Living Older Person Support Service	The value of similar outcomes based on contents of the report and feedback from stakeholders is	Wellbeing Valuation Method

						converted into an actual price in Taiwan	
<b>Project implementers</b>	Volunteers at environmental protection stations	Improve communication and coordination ability	Tuition for courses on communication skills offered by private institutions in Taiwan	4,500	"Communication and marketing course, interpretation training" of the Institute for Information Industry	Volunteers improve their communication and coordination abilities by participating in the project, which is similar to learning skills by participating in courses on communication skills offered by private institutions	Revealed Preference Method
		Improve individual sense of achievement	The value of the sense of satisfaction elderly people in the United Kingdom gain from volunteering	6,851	Evaluation of Social Return on Investment created through Gentoo Living Older Person Support Service	The value of similar outcomes based on contents of the report and feedback from stakeholders is converted into an actual price in Taiwan	Wellbeing Valuation Method
		Enhance the sense of organizational identification and sense of belonging	Pride	841	Quantifying the Value of Emotions Using a Willingness to Pay Approach	The value of similar outcomes based on contents of the report and feedback from stakeholders is converted into an actual price in Taiwan	Wellbeing Valuation Method
		Improve activity planning and execution abilities	Project management courses offered by private institutions in Taiwan	4,600	Courses of the Institute for Information Industry to "Improve project management ability"	Volunteers improve their activity planning and execution abilities by participating in the project, which is similar to learning skills by participating in project management courses offered by private institutions	Revealed Preference Method
		Related to the well-being of families	Improved family relationships	57,240	Quantifying the Value of Emotions Using a Willingness to Pay Approach	The value of similar outcomes based on contents of the report and feedback from stakeholders is converted into an actual price in Taiwan	Wellbeing Valuation Method
		Increase knowledge of environmental protection	Tuition of private institutions in Taiwan for training a	500	Climate change energy initiative volunteer training	Volunteers gain knowledge of environmental protection by participating in the project, which is similar to learning skills by participating in environmental	Revealed Preference Method

			volunteer capable of explaining energy issues			education courses offered by private institutions	
		Improve physical health	Keep fit Unknown	36,206	Measuring the Social Impact of Community Investment: A Guide to using the Wellbeing Valuation Approach	The value of similar outcomes based on contents of the report and feedback from stakeholders is converted into an actual price in Taiwan	Wellbeing Valuation Method
<b>Project beneficiaries</b>	Beneficiary of medical assistive device	Reduce financial burden	Statistics compiled based on questionnaire survey results	63,102,000	Care data of Tzu Chi's assistive device platform	The value of assistive devices that were rented out free of charge on the assistive device platform in 2020 was calculated.	Stated reference method
		Improve quality of life (Improving mobility)	Reduced health impact of poor housing	4,065	Social Value: Understanding the wider value of public policy interventions	The value of similar outcomes based on contents of the report and feedback from stakeholders is converted into an actual price in Taiwan	Wellbeing Valuation Method
		Enhance sense of psychological and physical safety	Positive functioning	22,896	Social Value: Understanding the wider value of public policy interventions	The value of similar outcomes based on contents of the report and feedback from stakeholders is converted into an actual price in Taiwan	Wellbeing Valuation Method
		Improve positive emotions	Happiness	1,312	Quantifying the Value of Emotions Using a Willingness to Pay Approach	The value of similar outcomes based on contents of the report and feedback from stakeholders is converted into an actual price in Taiwan	Wellbeing Valuation Method
<b>Project beneficiaries</b>	Environment	Benefits from recycling and carbon reduction	Carbon pricing	417	<u>CDP Global Carbon Price report 2021 Price ranges by region</u> URL: <a href="https://cdn.cdp.net/cdp-production/cms/reports/documents/000/005/651/original/CDP_Global_Carbon_Price_report_2021.pdf?1618938446">https://cdn.cdp.net/cdp-production/cms/reports/documents/000/005/651/original/CDP_Global_Carbon_Price_report_2021.pdf?1618938446</a>	The recycling volume in 2020 was 89,514.1 metric tons, which is equal to reducing carbon emissions by 133,135 metric tons, and then multiplied by the median carbon price in Asia in the CDP Global Carbon Price Report 2021.	Revealed Preference Method
<b>Others</b>	Staff members of Tzu Chi Culture and	Improve communication and	Tuition for courses on communication skills offered by	4,500	"Communication and marketing course, interpretation training" of the Institute for Information Industry	Staff members improve their communication and coordination abilities by participating in the project, which is similar to learning	Revealed Preference Method

	Communication Foundation	coordination ability	private institutions in Taiwan			skills by participating in courses on communication skills offered by private institutions	
		Increase knowledge of environmental protection	Tuition of private institutions in Taiwan for training a volunteer capable of explaining energy issues	500	Climate change energy initiative volunteer training	Staff members gain knowledge of environmental protection by participating in the project, which is similar to learning skills by participating in environmental education courses offered by private institutions	Revealed Preference Method
	Staff members of DA.AI Technology	Increase knowledge of environmental protection	Tuition of private institutions in Taiwan for training a volunteer capable of explaining energy issues	500	Climate change energy initiative volunteer training	Staff members gain knowledge of environmental protection by participating in the project, which is similar to learning skills by participating in environmental education courses offered by private institutions	Revealed Preference Method
		Enhance the sense of spiritual satisfaction	Delight	1,121	Quantifying the Value of Emotions Using a Willingness to Pay Approach	The value of similar outcomes based on contents of the report and feedback from stakeholders is converted into an actual price in Taiwan	Wellbeing Valuation Method



## 5.2 Sensitivity factors and project's outcome value quantification

The sensitivity analysis was included in the calculation process of SROI for Tzu Chi's environmental protection missions, to more accurately calculate the actual value of each activity due to the change. Benefits that may have been double counted or were not directly due to the change were excluded to comply with the SROI analysis principle of do not over-claim. There were four main factors in the sensitivity analysis of activities related to the environmental protection missions, specifically:

1. Deadweight factor: A measure of the amount of outcome that would have happened even if the activities of Tzu Chi's environmental protection missions had not taken place.
2. Attribution factor: Discuss the percentage that activities of Tzu Chi's environmental protection missions contributed to the change
3. Displacement factor: Discuss whether the activities of Tzu Chi's environmental protection missions will result in other significant negative effects
4. Drop-off factor: Discuss the drop-off in effect of an outcome over time on a yearly basis. The table below is divided into 6 levels (0%, 20%, 40%, 60%, 80%, and 100%).

This project verifies if sensitive factors of changes brought by activities exist through interviews with stakeholders. Sensitive factors of changes brought by activities are then included in items of the questionnaire survey, and then the impact of each sensitive factor is calculated based on questionnaire survey results for each activity. The most conservative approach is used for analysis to avoid making too many assumptions. Please see Table 5.2.1 for sensitive factors of activities related to the environmental protection missions, please see the appendix for detailed contents of questionnaires.

### ➤ Deadweight

The deadweight of each outcome was collected from the 4th stakeholder engagement (questionnaire) and averaged. The higher the deadweight, that is, the higher the percentage of the outcome that still occurs, the lower the impact. The deadweight mainly falls in the range of 40% to 70%. It probably because that the stakeholders can learn similar environmental protection knowledge in their daily life or work. On the other hand, the deadweight of "Improve sense of achievement at work" of Staff members of Tzu Chi Foundation is only 25%, indicating that this achievement is irreplaceable. The lower deadweight in "Improve Tzu Chi's image" is due to the calculation of media value only included reports related to Tzu Chi's environmental Protection Missions and didn't consider the media exposure of Tzu Chi in other project.

### ➤ Attribution

The attribution of each outcome was collected from the 4th stakeholder engagement (questionnaire) and averaged. The higher the attribution, that is, the higher the percentage of the outcome that other factors contribute to, the lower the impact. The attribution mainly falls in the range of 40% to 60%. In recent years, environmental protection issue has been raised, and environmental protection-related knowledge can be accessed in daily life or by the media, which may be the reason for the high attribution.

### ➤ Drop-off

The drop-off of each outcome was collected from the 4th stakeholder engagement (questionnaire) and averaged. The higher the drop-off, the higher the percentage of the outcome that is gradually dropped off. How long the outcome lasted was calculated based on the duration of the outcome indicated by the stakeholders in the questionnaire, coupled with the drop-off factor. The overall drop-off of Environmental Protection Missions was generally high, this is because Tzu

Chi's Environmental Protection Missions is a continuous long-term project, and all stakeholders are expected to continue participating in this project and have the same outcomes every year, so the drop-off is relatively high.

➤ Displacement

In this analysis, no outcomes were discounted for displacement. This is because the founding of Tzu Chi's Environmental Protection Missions is set out for environmental protection and environment education. All outcomes experienced are not mutually exclusive. That is, stakeholders experience changes without taking the opportunity away from other stakeholders to also experience the outcomes. In addition, open-ended questions were designed in the 1st and 2nd stakeholder engagements to explore other impacts of Tzu Chi's Environmental Protection Missions on the stakeholder's outside the project. No displacement factors were specifically indicated by the stakeholders. Hence, this analysis does not include displacement in the calculation of impact.

Table 5.2-1 Analysis of adjustment factors and calculation of the value of outcomes

Core stakeholders		Outcomes	Financial proxy indicators	Value of indicator	Deadweight	Displacement	Attribution	Drop-off	Value of outcome	Duration of outcomes (years)	Value in 2020 (NTD)	Present value in 5 years (NTD)
<b>Project initiators</b>	Tzu Chi Foundation	Improve Tzu Chi's image	Average price of commercials on cable TV	1,953,140	25%	0%	25%	10%	1,098,641	1.00	1,098,641	2,197,283
<b>Project implementers</b>	Staff members at environmental protection stations	Increase knowledge of environmental protection	Tuition of private institutions in Taiwan for training a volunteer capable of explaining energy issues	500	45%	0%	46%	86%	894	3.00	894	1,913
		Improve project management ability	Project management courses offered by private institutions in Taiwan	4,600.00	56%	0%	44%	80%	6,792	2.50	6,792	14,943
		Improve communication and coordination ability	Courses on communication skills offered by private institutions in Taiwan	4,500.00	40%	0%	39%	87%	11,000	3.17	11,000	23,650
		Improve sense of achievement at work	Increased confidence/self-esteem	22,895.81	25%	0%	44%	85%	57,955	3.00	57,955	124,603
<b>Project implementers</b>	Volunteers at environmental protection stations	Improve communication and coordination ability	Courses on communication skills offered by private institutions in Taiwan	4,500.00	47%	0%	45%	90%	44,764,559	3.06	44,764,559	94,357,924
		Improve individual sense of achievement	The value of the sense of satisfaction elderly people in the United Kingdom gain from volunteering	6,851.40	46%	0%	44%	89%	70,822,659	3.23	70,822,659	150,520,171
		Enhance the sense of organizational identification and sense of belonging	Pride	840.81	47%	0%	45%	90%	8,440,807	3.36	8,440,807	17,810,104

		Improve activity planning and execution abilities	Project management courses offered by private institutions in Taiwan	4,600.00	46%	0%	46%	88%	46,196,980	3.15	46,196,980	98,553,057
		Related to the well-being of families	Improved family relationships	57,239.53	48%	0%	44%	92%	99,559,963	3.47	569,876,525	620,551,394
		Increase knowledge of environmental protection	Tuition of private institutions in Taiwan for training a volunteer capable of explaining energy issues	500	44%	0%	41%	95%	5,593,927	3.61	5,593,927	11,499,317
		Improve physical health	Keep fit Unknown	36,206.29	48%	0%	45%	88%	350,057,677	3.37	350,057,677	745,720,091
<b>Project beneficiaries</b>	Beneficiary of medical assistive device	Reduce financial burden	Estimated value of assistive devices	63,102,000	43%	0%	41%	79%	15,360,355	1.71	21,192,150	42,384,301
		Improve quality of life (Improving mobility)	Reduced health impact of poor housing	4,065.31	45%	0%	47%	77%	3,674,720	2.05	5,003,849	11,162,433
		Enhance sense of psychological and physical safety	Positive functioning	22,895.81	47%	0%	46%	77%	18,324,826	1.80	27,744,754	55,489,509
		Improve positive emotions	Happiness	1,311.52	52%	0%	47%	77%	979,474	1.90	1,395,030	2,790,059
<b>Project beneficiaries</b>	Environment	Benefits from recycling and carbon reduction	Carbon pricing	417.02	0%	0%	0%	100%	55,520,343	1.00	55,520,343	111,040,686
<b>Others</b>	Staff members of Tzu Chi Culture and Communication Foundation	Improve communication and coordination ability	Courses on communication skills offered by private institutions in Taiwan	4,500.00	58%	0%	50%	93%	3,750	4.00	3,750	7,767
		Increase knowledge of environmental protection	Tuition of private institutions in Taiwan for training a volunteer capable of explaining energy issues	500	67%	0%	50%	93%	333	4.00	333	690

	DA.AI Technology	Increase knowledge of environmental protection	Tuition of private institutions in Taiwan for training a volunteer capable of explaining energy issues	500	67%	0%	38%	73%	313	3.67	313	731
		Enhance the sense of spiritual satisfaction	Delight	1121.16	67%	0%	67%	53%	374	2.67	374	922

### 5.3 SROI analysis results

After analyzing adjustment factors and calculating the value of project outcomes, the discount rate is considered to calculate the present value in 2020-2024, which is then divided by the total value of inputs to calculate the SROI of Tzu Chi's environmental protection missions, as shown in Table 5.3-1.

Table 5.3-1 Calculation results of Tzu Chi's environmental protection missions

Activity stage	Value
Total Impact	2,525,220,088
Total Inputs	398,296,011
SROI rate	6.34

### 5.4 Sensitivity analysis

The level of changes among major stakeholders of the project is analyzed based on stakeholder engagement. Correlation analysis is conducted based on the principle to be conservative, but the overall evaluation process of SROI involves the subjective judgment of stakeholders, and is not a conventional financial estimate and analysis model. Hence, there might be different SROI results due to the different stakeholders included or the measurement of financial proxy indicators. The sensitivity analysis uses adjustment factors and financial proxy indicators of each outcome to determine the sensitivity of the project's SROI rate, to be conservative and objective. Analysis results are described below, see Table 5.4-1 for a summary of analysis results.

Table 5.4-1 Sensitivity analysis results of Tzu Chi's environmental protection missions

SROI rate	Factor adjustments	Description
15.2	Financial proxy indicators	"Benefits from recycling and carbon reduction" of Tzu Chi Foundation was adjusted, and the financial proxy indicator used the highest carbon price instead of the median carbon price in Asia in the "CDP Global Carbon Price Report 2021," raising the amount to US\$918.
152.7	Input	Adjusted the cost of main inputs and excluded the time cost of volunteers at environmental protection stations
6.33	Deadweight	The deadweight of "Improve Tzu Chi's image" was increased to 100%.
6.5	Attribution	For volunteers at environmental protection stations, the attribution of "Improve individual sense of achievement" was reduced to 20%.
6.33	Drop-off	The drop-off of knowledge of environmental protection related outcomes was increased to 100%.
5.7	Displacement	The overall displacement was increased to 10%.

➤ Financial proxy indicators

Reports published by the World Economic Forum (WEF) and the Intergovernmental Panel on Climate Change (IPCC), which is the authoritative organization that summarizes information on global climate change, in 2022 all emphasize that climate change is a green swan, and that the world must immediately face the impact of climate change. Carbon pricing has always been considered an important means for achieving net zero emissions. The latest report of the World Bank shows that international carbon prices have reached a new peak in the past two years, but will continue to increase in the future to achieve global climate goals. The financial proxy indicator for "benefits from

recycling and carbon reduction" uses the median carbon price in Asia in the "CDP Global Carbon Price Report 2021," but if the highest carbon price in Asia is used, then the overall SROI rate will increase to 15.2.

➤ Input

Most volunteers at environmental protection stations are retired individuals, so there is a very low chance that the number of hours they input will be converted into economic productivity. If the time cost that they input is not considered, then the overall SROI rate will significantly increase to 152.7.

➤ Deadweight

The outcome, "Improve Tzu Chi's image" of Tzu Chi Foundation is calculated based only on the reports related to Tzu Chi's environmental Protection Missions. However, considering that Tzu Chi Foundation has long been engaging in various types of charitable services and has a good reputation in society, if we assume that the "Environmental Protection Missions" would not bring additional improvement to Tzu Chi Foundation's image, deadweight of "Improve Tzu Chi's image" would be increased to 100%. The overall SROI would then decrease to 6.33, but the difference is not significant.

➤ Attribution

Attribution-related questions were included in the stakeholder engagements through the interview and questionnaire respectively. According to the calculations, all attribution factors came from the questionnaire results. There was a difference between the attribution of some outcomes and the information acquired from the interview. For example, most of the volunteers at environmental protection stations interviewed mentioned that participating in the recycling of the environmental protection station can bring a sense of achievement to oneself; According to the questionnaire results, however, the attribution of the "Improve individual sense of achievement" was 44%. If the percentage was reduced to 20%, the SROI would then increase to 6.5.

➤ Drop-off

This analysis noticed that the knowledge of environmental protection that stakeholders acquired in the project was quite extensive, which may make it difficult for stakeholders to apply it in their daily lives. If we assume that the drop-off of "Increase knowledge of environmental protection" is increased to 100% for all stakeholders, the overall SROI value will decrease to 6.33. However, the adjustment has almost no effect on the overall result. The barely changed result gave this analysis to consider that the level of drop off on these outcomes were not material and no further action on the revisit of drop-off factors were taken.

➤ Displacement

No significant displacement was identified in the stakeholder engagements. Thus, there was no inaccuracy in displacement and should have no impact on the overall calculations. If we assumed that the overall outcomes have a 10% displacement, the overall SROI would decrease to 5.7

The results of the sensitivity analysis above indicate that as the carbon price will continue to increase in the future to achieve global climate goals, the impact value of this project will continue to increase. It is also important to note and maintain that the project will not bring negative outcomes to the stakeholders (with all displacement being zero).

## VI. Description of SROI analysis results

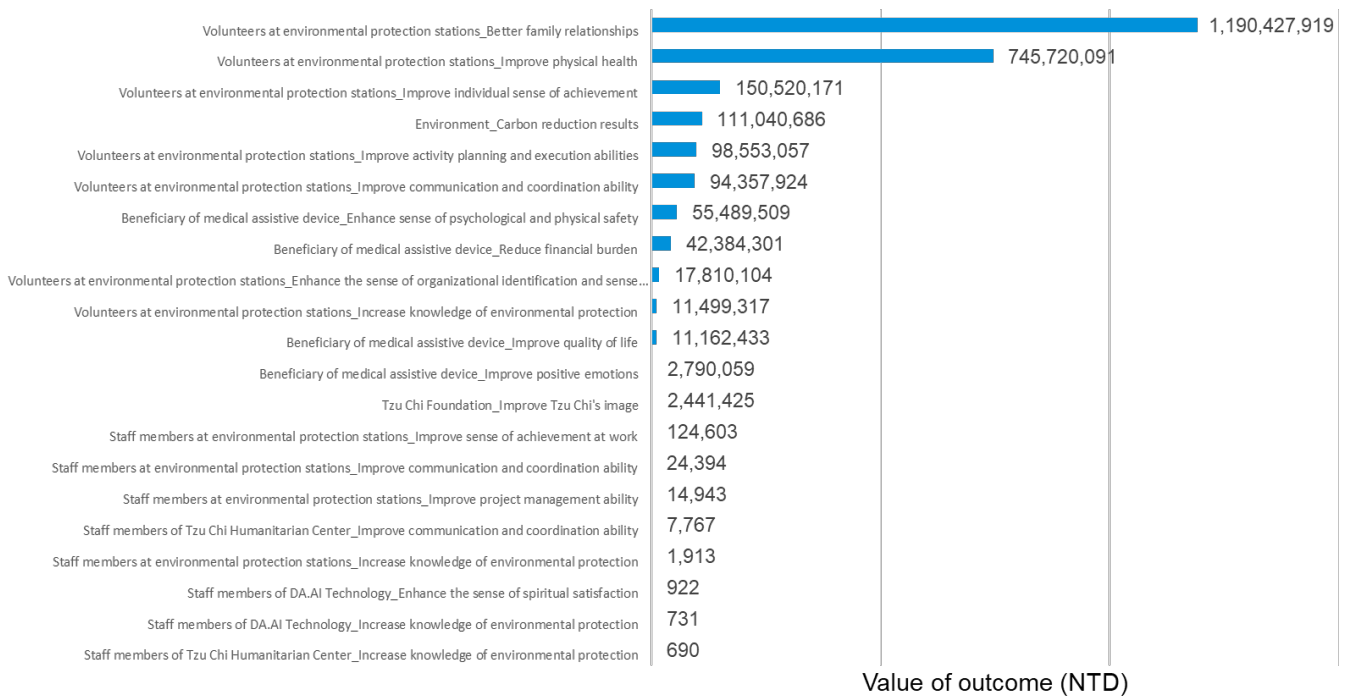
Based on the analysis results above, for every NT\$1 of input in Tzu Chi's environmental

protection missions, NT\$6.34 in social benefits will be generated.

## 6.1 Description of SROI analysis results

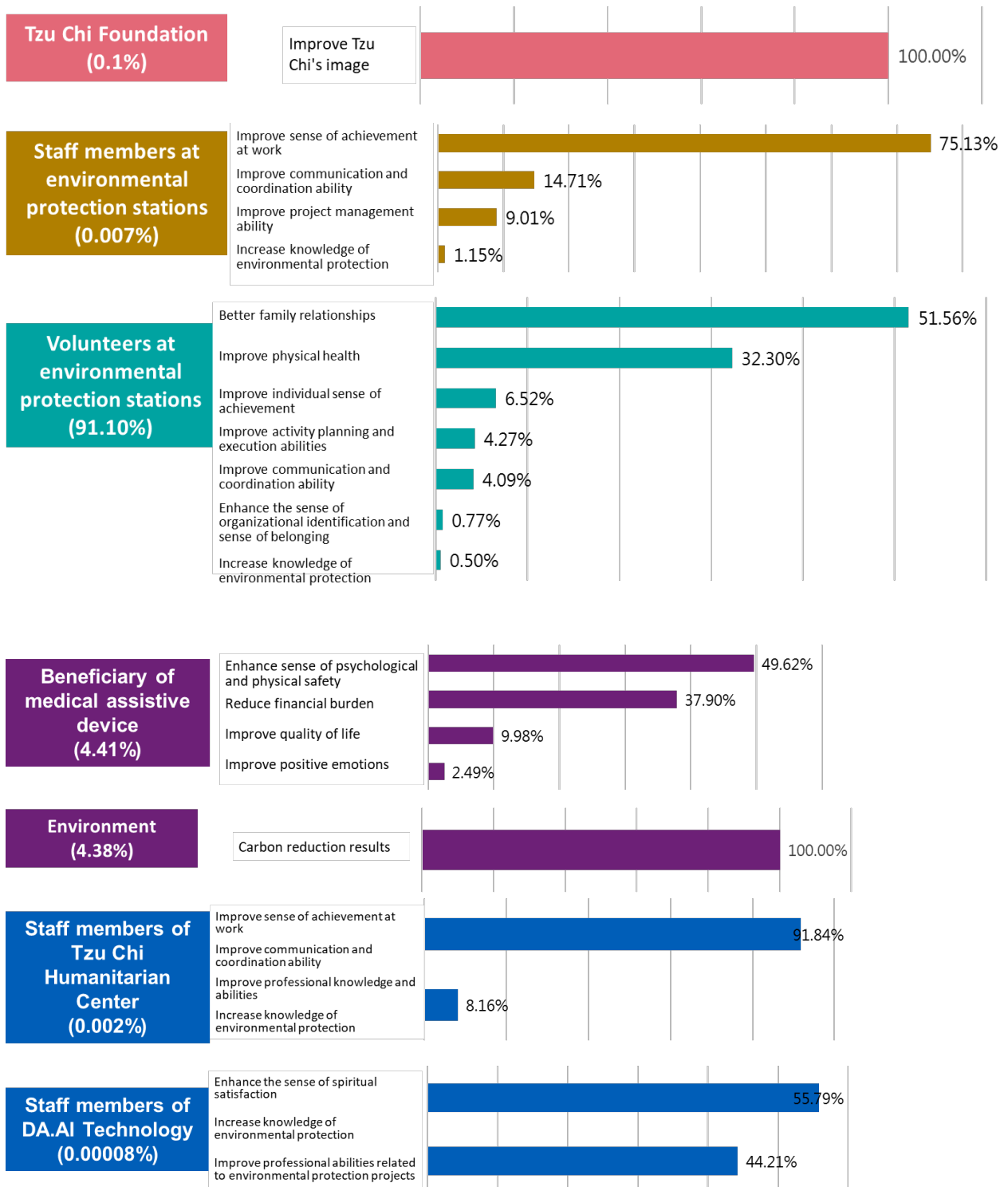
The overall SROI of Tzu Chi's environmental protection missions in 2020 was 6.34, the net investment was NT\$398,296,011, and the net outcome was NT\$2,525,220,088. As shown in Figure 6.1.1-1, the main benefits are "Better family relationships" and "Improve physical health," the value of outcomes by stakeholder is shown in Figure 6.1.1-2, and the benefits are mainly concentrated in volunteers at environmental protection stations, Tzu Chi Foundation, and beneficiaries of assistive devices.

Figure 6.1.1-1 Distribution of SROI from Tzu Chi's environmental protection missions





6.1.1-2 Distribution of SROI from Tzu Chi's environmental protection missions by stakeholder



## Appendix

### Appendix 1 Example of questions for the interview

#### I. Collection of interviewee's basic background information

- **Explanation:**

The first part of the question is to understand the basic background of the respondent and use it as a reference for subsequent evaluations.

- **Question:**

1. What line of work are you currently in?
2. What activities of Tzu Chi's environmental protection missions have you mainly been involved in? (verify which events in the four main types of activities in the project)
3. What did you mainly do when participate in conventional environmental protection and environmental education activities of Tzu Chi?
4. Have you engaged in any environmental protection activities of organizations other than Tzu Chi in the past?

#### II. Relationship between interviewees and activities of Tzu Chi's environmental protection missions

- **Explanation:**

The second part of the questions focuses on understanding the process of establishing the relationship between the interviewee and activities related to environmental protection missions. This information will be used as background information for the subsequent measurement of outcomes.

- **Questions:**

1. How did you get to know about Tzu Chi's environmental protection missions (conventional environmental protection and environmental education)? (Can you tell us who your reference is?)
2. How did you get the opportunity to know about Tzu Chi's conventional environmental protection and environmental education activities? (Event)
3. When did you start to engage in Tzu Chi's conventional environmental protection and environmental education activities? (Timeline)
4. What were your considerations when deciding to participate in conventional environmental protection and environmental education activities of Tzu Chi?
5. How long and what was the frequency that you participated in conventional environmental protection and environmental education activities of Tzu Chi?

## II. Relationship between interviewees and activities of Tzu Chi's environmental protection missions

6. What are the differences between Tzu Chi and other environmental protection or environmental education organizations or initiatives that you know of? (Only ask this question when the interviewee mentioned that he/she engaged in similar volunteer activities of similar organizations)

## III. Impacts on stakeholders

- **Explanation:**

The third part mainly consists of open questions to understand the outcomes brought to interviewees after engaging in conventional environmental protection and environmental education volunteer activities of Tzu Chi, which will be used as the subject for subsequent evaluation of the project.

- **Questions:**

1. What are your changes before and after engaging in conventional environmental protection and environmental education activities of Tzu Chi? Changes can be positive or negative.
2. What event while participating in conventional environmental protection and environmental education activities of Tzu Chi left the deepest impression or how did you feel? How did it affect you?
3. In general, what are the main impacts on you when engaging in the activities of Tzu Chi?
4. Continuing from the above question, which of the impacts that you mentioned was the most significant?
5. What was your greatest change after engaging in conventional environmental protection and environmental education activities of Tzu Chi?
6. Who or what organizations did you mainly engage during activities of Tzu Chi?
7. In addition to the changes mentioned above, are there any changes you would like to add?

Appendix 2 Sample Questionnaire

**Target of the questionnaire - volunteers**

**Description of the questionnaire**

<b>Implementation unit</b>	Tzu Chi Foundation, KPMG Sustainability Consulting Co., Ltd.
<b>Purpose of the questionnaire</b>	This study aims to evaluate the outcomes brought about by the Tzu Chi Foundation Environmental Protection MISSION to relevant units and participants, so we use this questionnaire to understand your thoughts for Tzu Chi Foundation Environmental Protection MISSION and it will be used as a reference for the quantification of outcomes/ impacts on you.
<b>Length of the questionnaire</b>	This questionnaire has a maximum of 14 questions (may skip questions depending on the status of answering process), and the estimated time to complete the questionnaire is 30 minutes.
<b>Declaration of data usage</b>	All of the information collected in this questionnaire will only be used by KPMG to assist the Tzu Chi Foundation in assessing social benefits. It will not be used for any other purposes, and the personal information of questionnaire respondents will not be released internally or externally.

**Basic information**

Topic	Answer
What is your gender?	<input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Others
What age bracket are you in?	<input type="checkbox"/> 29 years old and younger <input type="checkbox"/> 30-40 years old <input type="checkbox"/> 41-50 years old <input type="checkbox"/> 51-60 years old <input type="checkbox"/> 61-70 years old <input type="checkbox"/> 71-80 years old <input type="checkbox"/> 81-90 years old <input type="checkbox"/> 91 years old and above
What year did you start engaging in activities of Tzu Chi?	Year _____
What year did you start engaging in Tzu Chi's environmental protection missions?	Year _____
On average, how many hours a week do you dedicate to environmental protection missions?	<input type="checkbox"/> 8 hours or less (1 work day or less) <input type="checkbox"/> 9-24 hours (2-3 work days) <input type="checkbox"/> 25-40 hours (4-5 work days) <input type="checkbox"/> 41 hours or more (6 work days or more)

Topic	Answer
Are you a certified volunteer?	<input type="checkbox"/> Yes, authorized in the year _____ <input type="checkbox"/> No

## Survey on benefits: Required items

The following item asks about your changes and experience from engaging in services of Tzu Chi's environmental protection stations. Please choose the closest answer based on the description. The meaning of each answer is described below:

Option	Level represented by the option	Meaning of the option
None	0%	No effect, did not increase
Marginal	25%	Slight effect, slight increase
Moderate	50%	Had an effect, moderate increase
High	75%	Significant effect, significant increase
Complete	100%	Full effect, comprehensive increase

### I. Improve communication and coordination ability

Topic	Answer
1. Did engaging in services at Tzu Chi's environmental protection stations improve your communication and coordination abilities? (e.g. communicating administrative affairs with other volunteers, interacting with elderly people or visiting groups, etc.)	<input type="checkbox"/> Yes <input type="checkbox"/> No (Please skip to Item 7 if this answer is selected)
2. Did other individuals or matters contribute to the improvement in your communication and coordination ability? (e.g. participating in other organizations can also improve coordination ability)	<input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 100%, while other factors accounted for 0%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 75%, while other factors accounted for 25%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 50%, while other factors accounted for 50%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations only accounted for 25%, while other factors accounted for 75%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 0%, while other factors

	accounted for 100%.
3. How much did your communication and coordination abilities improve? (Ability refers to smoother oral expression and better at communicating with volunteers and elderly people)	<input type="checkbox"/> None <input type="checkbox"/> Marginal <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Complete
4. How long will this improvement in your communication and coordination abilities last?	<input type="checkbox"/> Within 6 months <input type="checkbox"/> 6 months to 1 year <input type="checkbox"/> 1 to 2 years <input type="checkbox"/> 2 to 3 years <input type="checkbox"/> 3 years and above
5. Will this change (improve communication and coordination ability) become less apparent as time passes?	<input type="checkbox"/> Yes, decreases by 10% each year <input type="checkbox"/> Yes, decreases by 20% each year <input type="checkbox"/> Yes, decreases by 30% each year <input type="checkbox"/> Yes, decreases by 40% each year <input type="checkbox"/> Yes, decreases by 50% each year <input type="checkbox"/> Yes, decreases by 60% each year <input type="checkbox"/> Yes, decreases by 70% each year <input type="checkbox"/> Yes, decreases by 80% each year <input type="checkbox"/> Yes, decreases by 90% each year <input type="checkbox"/> Does not decrease
6. How much would your communication and coordination abilities have improved if you did not engage in services at Tzu Chi's environmental protection station?	<input type="checkbox"/> None <input type="checkbox"/> Marginal <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Complete

## II. Improve individual sense of achievement

Topic	Answer
7. Did engaging in services at Tzu Chi's environmental protection station improve your individual sense of achievement?	<input type="checkbox"/> Yes <input type="checkbox"/> No (Please skip to Item 19 if this answer is selected)
8. Did other individuals or matters contribute to the improvement in your individual sense of achievement?	<input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 100%, while other factors accounted for 0%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 75%, while other factors accounted for 25%.

	<input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 50%, while other factors accounted for 50%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations only accounted for 25%, while other factors accounted for 75%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 0%, while other factors accounted for 100%.
9. How much did your individual sense of achievement improve after engaging in services at Tzu Chi's environmental protection station?	<input type="checkbox"/> None <input type="checkbox"/> Marginal <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Complete
10. After engaging in services at Tzu Chi's environmental protection station, how long did the improvement in your individual sense of achievement last?	<input type="checkbox"/> Within 6 months <input type="checkbox"/> 6 months to 1 year <input type="checkbox"/> 1 to 2 years <input type="checkbox"/> 2 to 3 years <input type="checkbox"/> 3 years and above
11. Will this change become less apparent as time passes?	<input type="checkbox"/> Yes, decreases by 10% each year <input type="checkbox"/> Yes, decreases by 20% each year <input type="checkbox"/> Yes, decreases by 30% each year <input type="checkbox"/> Yes, decreases by 40% each year <input type="checkbox"/> Yes, decreases by 50% each year <input type="checkbox"/> Yes, decreases by 60% each year <input type="checkbox"/> Yes, decreases by 70% each year <input type="checkbox"/> Yes, decreases by 80% each year <input type="checkbox"/> Yes, decreases by 90% each year <input type="checkbox"/> Does not decrease
12. How much do you think your individual sense of achievement would have improved through daily operations/life if you did not engage in services at Tzu Chi's environmental protection station?	<input type="checkbox"/> None <input type="checkbox"/> Marginal <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Complete

### III. Enhance the sense of organizational identification and sense of belonging

Topic	Answer
13. Did engaging in services at Tzu Chi's environmental protection station improve your sense of organizational	<input type="checkbox"/> Yes <input type="checkbox"/> No (Please skip to Item 25 if this answer is selected)



<p>identification and sense of belonging? (e.g. building strong relationships with volunteers and elderly people)</p>	
<p>14. Did other individuals or matters contribute to your enhanced sense of organizational identification and sense of belonging?</p>	<p><input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 100%, while other factors accounted for 0%.</p> <p><input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 75%, while other factors accounted for 25%.</p> <p><input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 50%, while other factors accounted for 50%.</p> <p><input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations only accounted for 25%, while other factors accounted for 75%.</p> <p><input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 0%, while other factors accounted for 100%.</p>
<p>15. After engaging in services at Tzu Chi's environmental protection station, how much did it enhance your sense of organizational identification and sense of belonging?</p>	<p><input type="checkbox"/> None <input type="checkbox"/> Marginal <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Complete</p>
<p>16. After engaging in services at Tzu Chi's environmental protection station, how long did your enhanced sense of organizational identification and sense of belonging last?</p>	<p><input type="checkbox"/> Within 6 months <input type="checkbox"/> 6 months to 1 year <input type="checkbox"/> 1 to 2 years <input type="checkbox"/> 2 to 3 years <input type="checkbox"/> 3 years and above</p>
<p>17. Will this change become less apparent as time passes?</p>	<p><input type="checkbox"/> Yes, decreases by 10% each year  <input type="checkbox"/> Yes, decreases by 20% each year  <input type="checkbox"/> Yes, decreases by 30% each year  <input type="checkbox"/> Yes, decreases by 40% each year  <input type="checkbox"/> Yes, decreases by 50% each year  <input type="checkbox"/> Yes, decreases by 60% each year  <input type="checkbox"/> Yes, decreases by 70% each year  <input type="checkbox"/> Yes, decreases by 80% each year</p>

	<input type="checkbox"/> Yes, decreases by 90% each year <input type="checkbox"/> Does not decrease
18. How much do you think your sense of organizational identification and sense of belonging would be enhanced through daily operations/life if you did not engage in services at Tzu Chi's environmental protection station?	<input type="checkbox"/> None <input type="checkbox"/> Marginal <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Complete

#### IV. Improve activity planning and execution abilities

Topic	Answer
19. Did engaging in services at Tzu Chi's environmental protection stations improve your activity planning and execution abilities? (e.g. working together with volunteers in preparing activities of environmental protection stations and handling administrative processes and matters)	<input type="checkbox"/> Yes <input type="checkbox"/> No (Please skip to the next item if this answer is selected)
20. Did other individuals or matters contribute to the improvement in your activity planning and execution abilities?	<input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 100%, while other factors accounted for 0%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 75%, while other factors accounted for 25%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 50%, while other factors accounted for 50%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations only accounted for 25%, while other factors accounted for 75%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 0%, while other factors accounted for 100%.
21. After engaging in services at Tzu Chi's environmental protection station, how	<input type="checkbox"/> None <input type="checkbox"/> Marginal <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Complete

much did you activity planning and execution abilities improve?	
22. After engaging in services at Tzu Chi's environmental protection station, how long did the improvement in your activity planning and execution abilities last?	<input type="checkbox"/> Within 6 months <input type="checkbox"/> 6 months to 1 year <input type="checkbox"/> 1 to 2 years <input type="checkbox"/> 2 to 3 years <input type="checkbox"/> 3 years and above
23. Will this change become less apparent as time passes?	<input type="checkbox"/> Yes, decreases by 10% each year <input type="checkbox"/> Yes, decreases by 20% each year <input type="checkbox"/> Yes, decreases by 30% each year <input type="checkbox"/> Yes, decreases by 40% each year <input type="checkbox"/> Yes, decreases by 50% each year <input type="checkbox"/> Yes, decreases by 60% each year <input type="checkbox"/> Yes, decreases by 70% each year <input type="checkbox"/> Yes, decreases by 80% each year <input type="checkbox"/> Yes, decreases by 90% each year <input type="checkbox"/> Does not decrease
24. How much do you think your activity planning and execution abilities would have improved through daily operations/life if you did not engage in services at Tzu Chi's environmental protection station?	<input type="checkbox"/> None <input type="checkbox"/> Marginal <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Complete

**V. Better family relationships**

Topic	Answer
25. Did engaging in services at Tzu Chi's environmental protection station improve your family relationships? (e.g. better understand how to get along with elderly people at home, better parent-child relationships)	<input type="checkbox"/> Yes <input type="checkbox"/> No (Please skip to the next item if this answer is selected)
26. Did other individuals or matters contribute to the improvement in your family relationships?	<input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 100%, while other factors accounted for 0%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 75%, while other factors accounted for 25%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's

	<p>environmental protection stations accounted for 50%, while other factors accounted for 50%.</p> <p><input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations only accounted for 25%, while other factors accounted for 75%.</p> <p><input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 0%, while other factors accounted for 100%.</p>
27. How much did your family relationships improve after engaging in services at Tzu Chi's environmental protection station?	<input type="checkbox"/> None <input type="checkbox"/> Marginal <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Complete
28. After engaging in services at Tzu Chi's environmental protection station, how long did the improvement in your family relationships last?	<input type="checkbox"/> Within 6 months <input type="checkbox"/> 6 months to 1 year <input type="checkbox"/> 1 to 2 years <input type="checkbox"/> 2 to 3 years <input type="checkbox"/> 3 years and above
29. Will this change become less apparent as time passes?	<input type="checkbox"/> Yes, decreases by 10% each year <input type="checkbox"/> Yes, decreases by 20% each year <input type="checkbox"/> Yes, decreases by 30% each year <input type="checkbox"/> Yes, decreases by 40% each year <input type="checkbox"/> Yes, decreases by 50% each year <input type="checkbox"/> Yes, decreases by 60% each year <input type="checkbox"/> Yes, decreases by 70% each year <input type="checkbox"/> Yes, decreases by 80% each year <input type="checkbox"/> Yes, decreases by 90% each year <input type="checkbox"/> Does not decrease
30. How much do you think your family relationships would have improved through daily operations/life if you did not engage in services at Tzu Chi's environmental protection station?	<input type="checkbox"/> None <input type="checkbox"/> Marginal <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Complete

## VI. Increase knowledge of environmental protection

Topic	Answer
31. Did engaging in services at Tzu Chi's environmental protection station increase your knowledge of environmental protection? (e.g. became a vegetarian, less materialistic, cherishes	<input type="checkbox"/> Yes <input type="checkbox"/> No (Please skip to the next item if this answer is selected)

things more)	
32. Did other individuals or matters contribute to the increase in your knowledge of environmental protection?	<input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 100%, while other factors accounted for 0%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 75%, while other factors accounted for 25%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 50%, while other factors accounted for 50%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations only accounted for 25%, while other factors accounted for 75%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 0%, while other factors accounted for 100%.
33. How much did your knowledge of environmental protection increase after engaging in services at Tzu Chi's environmental protection station?	<input type="checkbox"/> None <input type="checkbox"/> Marginal <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Complete
34. After engaging in services at Tzu Chi's environmental protection station, how long did the increase in your knowledge of environmental protection last?	<input type="checkbox"/> Within 6 months <input type="checkbox"/> 6 months to 1 year <input type="checkbox"/> 1 to 2 years <input type="checkbox"/> 2 to 3 years <input type="checkbox"/> 3 years and above
35. Will this change become less apparent as time passes?	<input type="checkbox"/> Yes, decreases by 10% each year <input type="checkbox"/> Yes, decreases by 20% each year <input type="checkbox"/> Yes, decreases by 30% each year <input type="checkbox"/> Yes, decreases by 40% each year <input type="checkbox"/> Yes, decreases by 50% each year <input type="checkbox"/> Yes, decreases by 60% each year <input type="checkbox"/> Yes, decreases by 70% each year <input type="checkbox"/> Yes, decreases by 80% each year <input type="checkbox"/> Yes, decreases by 90% each year <input type="checkbox"/> Does not decrease
36. How much do you think your knowledge of environmental protection would have	<input type="checkbox"/> None <input type="checkbox"/> Marginal <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Complete

increased through daily operations/life if you did not engage in services at Tzu Chi's environmental protection station?	
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## VII. Improve physical health

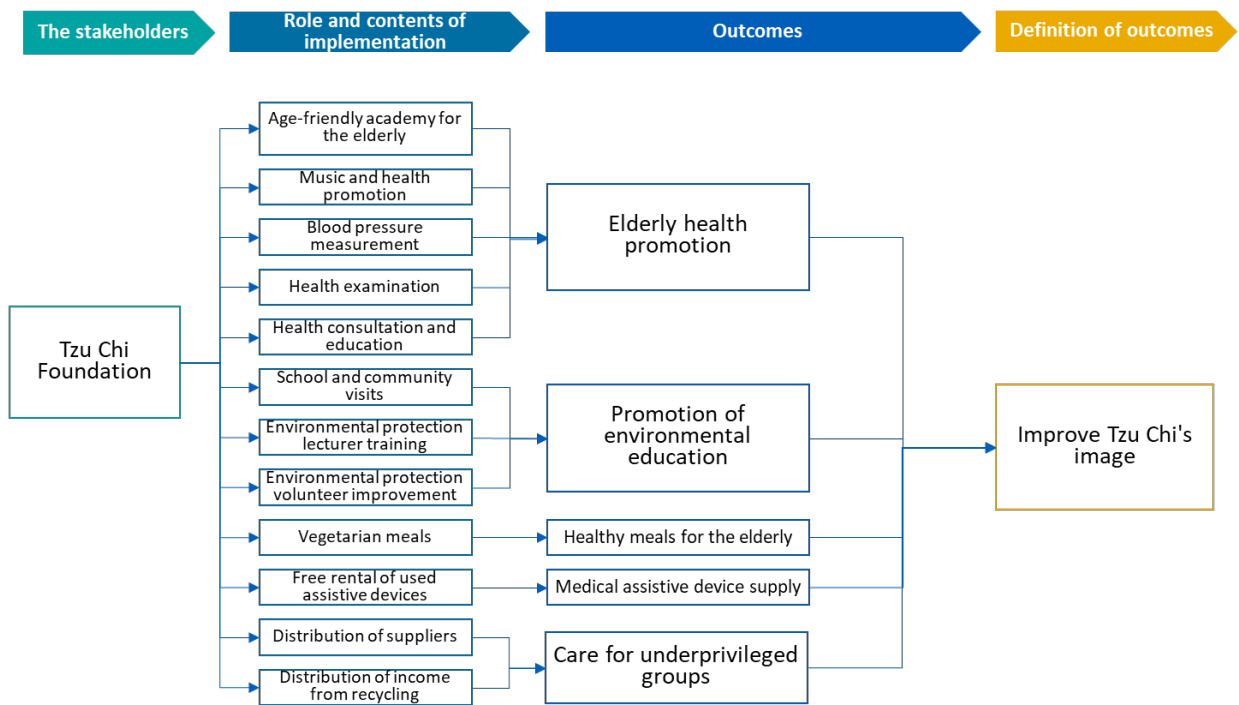
Topic	Answer
37. Did engaging in services at Tzu Chi's environmental protection station improve your physical health? (e.g. became physically stronger, delayed deterioration with age)	<input type="checkbox"/> Yes <input type="checkbox"/> No (Please skip to the next item if this answer is selected)
38. Did other individuals or matters contribute to the improvement in your physical health? (e.g. daily exercise, walking, playing chess)	<input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 100%, while other factors accounted for 0%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 75%, while other factors accounted for 25%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 50%, while other factors accounted for 50%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations only accounted for 25%, while other factors accounted for 75%. <input type="checkbox"/> Total inputs in activities of Tzu Chi's environmental protection stations accounted for 0%, while other factors accounted for 100%.
39. How much did your physical health improve after engaging in services at Tzu Chi's environmental protection station?	<input type="checkbox"/> None <input type="checkbox"/> Marginal <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Complete
40. After engaging in services at Tzu Chi's environmental protection station, how long did the improvement in your physical health last?	<input type="checkbox"/> Within 6 months <input type="checkbox"/> 6 months to 1 year <input type="checkbox"/> 1 to 2 years <input type="checkbox"/> 2 to 3 years <input type="checkbox"/> 3 years and above
41. Will this change become less apparent as time passes?	<input type="checkbox"/> Yes, decreases by 10% each year <input type="checkbox"/> Yes, decreases by 20% each year <input type="checkbox"/> Yes, decreases by 30% each year

	<input type="checkbox"/> Yes, decreases by 40% each year <input type="checkbox"/> Yes, decreases by 50% each year <input type="checkbox"/> Yes, decreases by 60% each year <input type="checkbox"/> Yes, decreases by 70% each year <input type="checkbox"/> Yes, decreases by 80% each year <input type="checkbox"/> Yes, decreases by 90% each year <input type="checkbox"/> Does not decrease
<p>42. How much do you think your physical health would have improved through daily operations/life if you did not engage in services at Tzu Chi's environmental protection station?</p>	<input type="checkbox"/> None <input type="checkbox"/> Marginal <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Complete

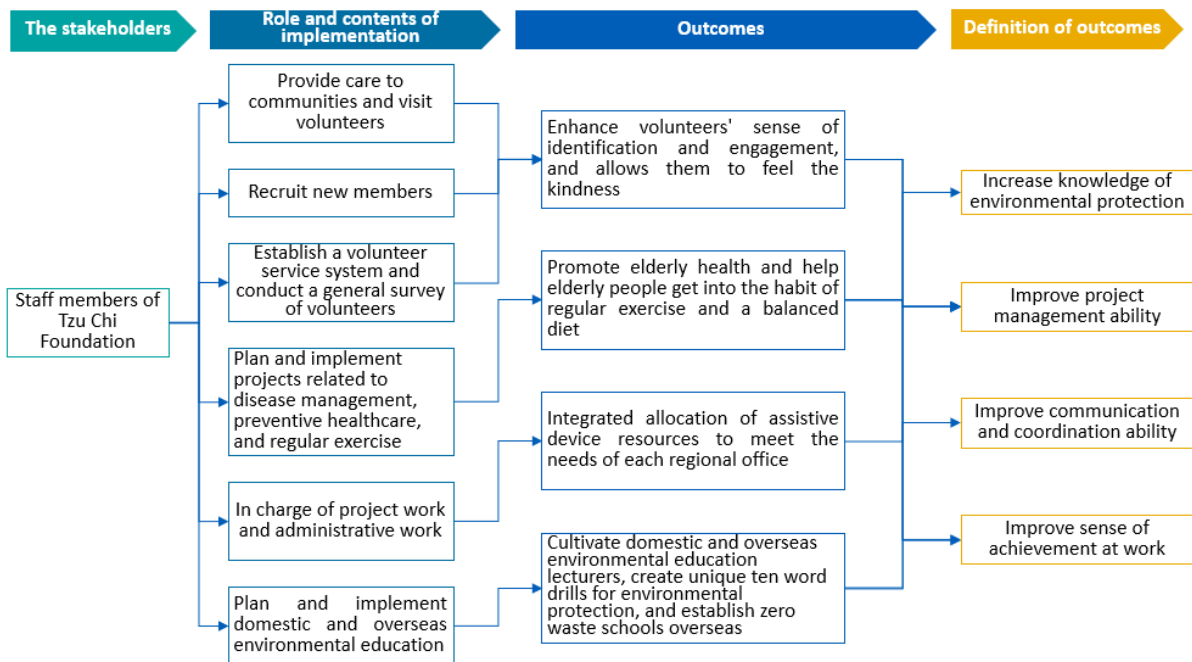
**This is the end of this questionnaire, thank you for your responses!**

## Appendix 3 Outcome chain of events

### Outcome chain of events: Tzu Chi Foundation

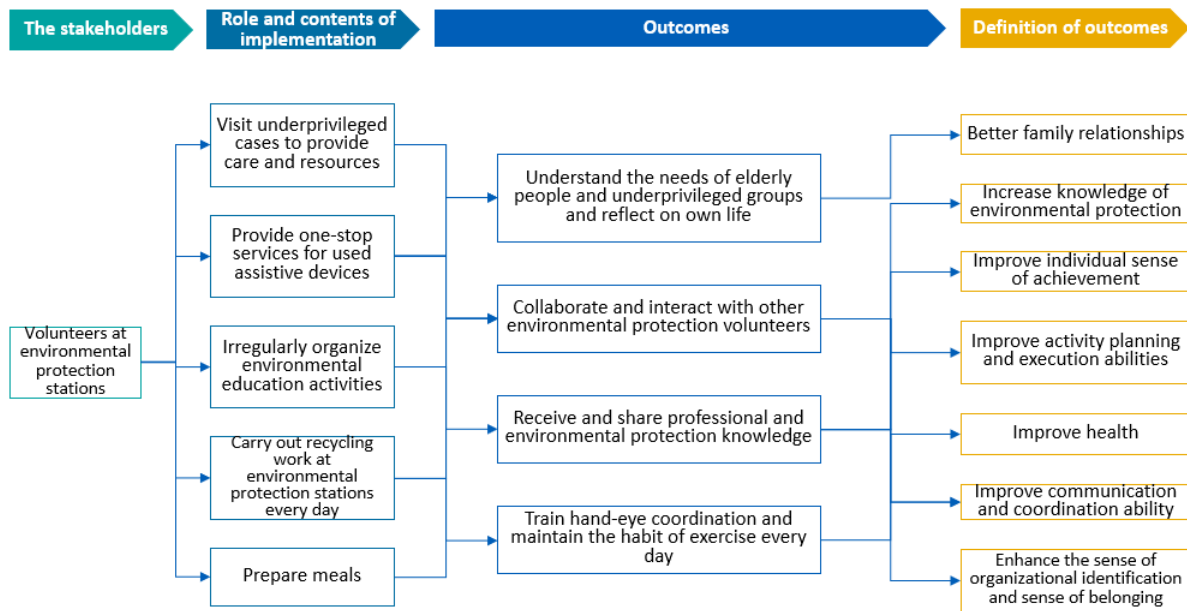


### Outcome chain of events: Staff members of Tzu Chi Foundation

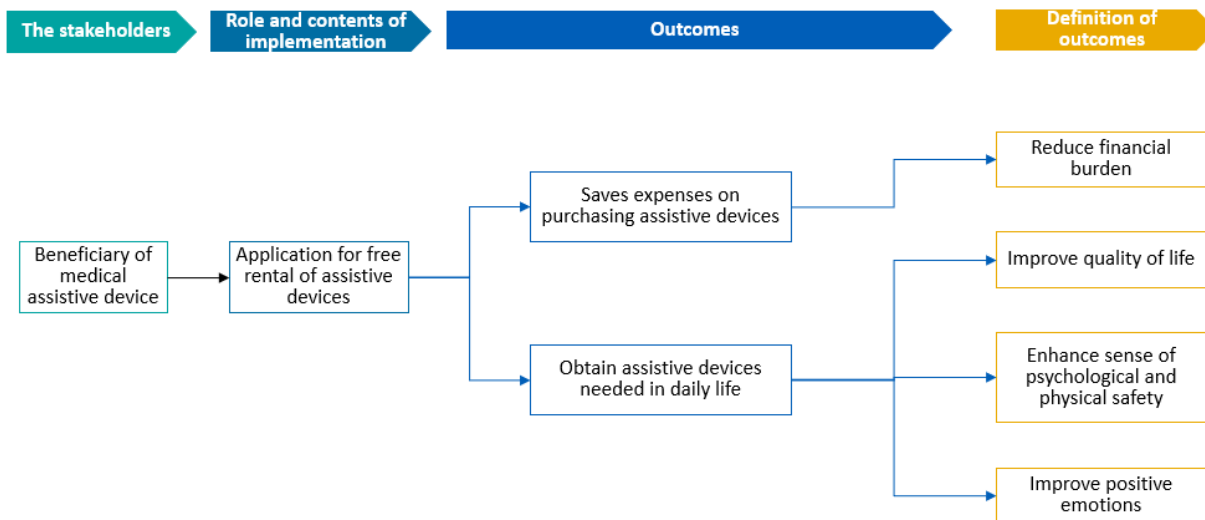




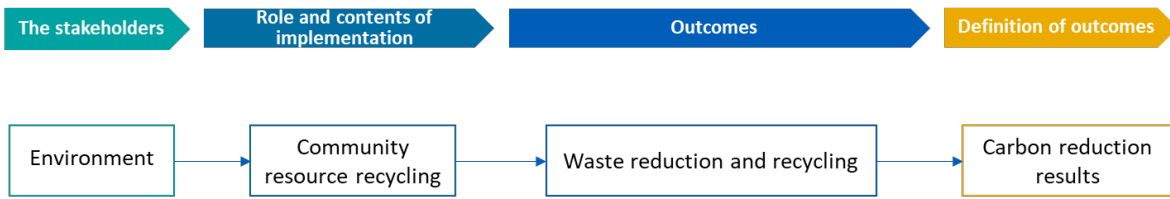
# Outcome chain of events: Volunteers at environmental protection stations



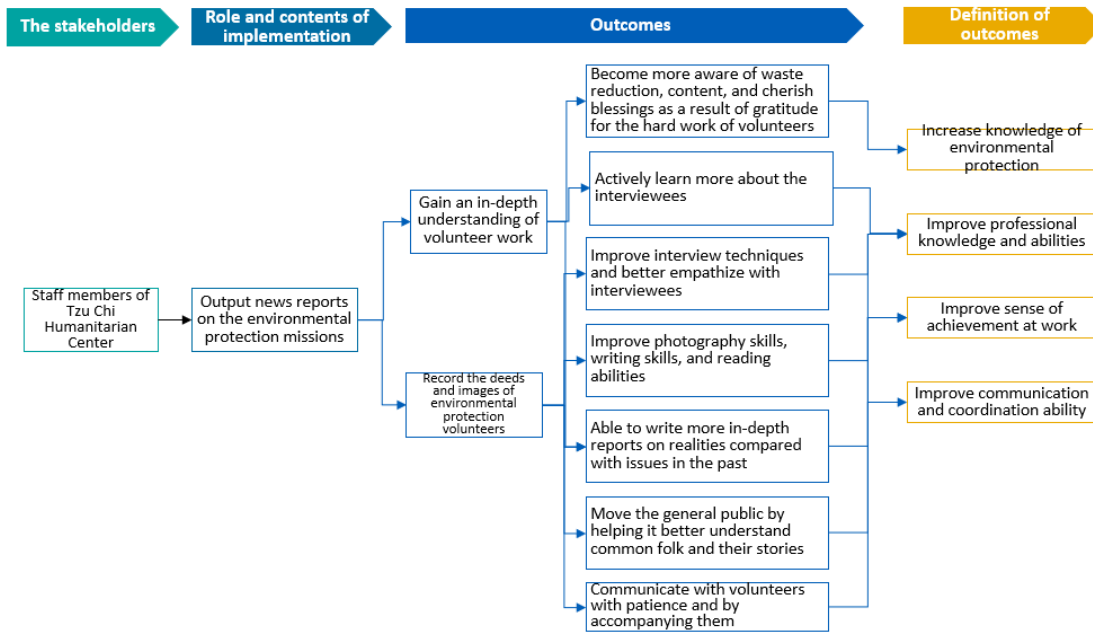
# Outcome chain of events: Beneficiary of medical assistive device



# Outcome chain of events: Environment



# Outcome chain of events: Staff members of Tzu Chi Culture and Communication Foundation



# Outcome chain of events: Staff members of DA.AI Technology

