Social Impact Assessment of Humanitarian Technology Projects

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It supports the IEEE Board-endorsed vision of IEEE volunteers around the world carrying out and/or supporting impactful humanitarian activities at local level.
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Social Impact of a Project

- The outcome of a successful project offers benefit to a local community.

- There are many benefits that may not always be quantifiable, some of them cannot be reflected immediately, some of them may add value indirectly.

- Social status, increased respect, satisfaction, increased harmony in family, blessings, less humiliation, minimizing the development gap in neighborhood, less crime, better working environment, enhance knowledge, good health, reducing mental pressure etc.
Social Impact or Return

Input: money, time, hours, expertise, facilities...

Output: less hospitalization, less medicine, less crime...

Outcomes: quality of life, good health, less mental pressure...

$=?

How to quantify the outcome?
SROI is a framework for measuring the value of an investment in an initiative or service in terms of expected outcomes.

Source: Sustainability Academy, Oct 2016, SROI Studies
Social Return on Investment

\[
\text{SROI} = \frac{\text{Value of benefits}}{\text{Value of investments}}
\]

\(\text{SROI} = 3\) Investment of $1 delivers $3 of social value

- **Actual SROI:** actual outcomes that have received
- **Forecasted SROI:** social value that will be created
Stages in SROI Computation

1. Identify key stakeholders
2. Map outcomes
3. Measure and value outcomes
4. Establish impact
5. Calculate SROI
6. Report

- 1 Find key stakeholders
- 2 Mapping outcomes
- 3 Measure and value outcomes.
- 4 Establishing impact
- 5 Calculating SROI.
- 6 Reporting.
Learning SROI via an Example

Sources:
thethirdploeg.net and
Safe Water Business Perspective

Social Impact Assessment of HT

Dr. Shaikh Fattah, Education Chair, IEEE HAC
In a village, getting pure drinking water is a problem.
Villagers very often suffer diseases due to water.
A water tank with purifier and supply system will be established by a group of volunteers.
The proposed system is set up in front of a clinic.
20% villagers shown interest to take the service.
The clinic will take the service.
Project cost: \( P_c = 20,000 \text{ USD for 3 years} \)
1. Stakeholders & Scope

- 1 Villagers: Who will get the benefit (250 people)
- 2. Clinic: Which sectors will be benefitted?
- 3. Volunteers: Amount of volunteer hours and gain

- Need some survey data: local and national
- For example: Average annual income, health spent, spent on leisure,...
2. Mapping Outcomes

- 1 Inputs
- 2. Outputs
- 3. Outcomes (Benefits)

20% Villagers agreed to use with an expectation to reduce chances of diseases and it will result in Good Health and Well-being (SDG-3)

\[ OC = 250 \times 0.2 = 50 \]
3. Assigning Value to Outcome

- Quality Adjusted Life Year (QALY)

1 QALY = 1 year in perfect health, (UK 1 QALY = 20-30K £)

Consider loss of QALY

Source: wikipedia
3. Assigning Value to Outcome

Consider—the project offers 0.5

1 QALY = 1000, & Loss = 0.5

Q0 = OC x QALY x Loss =

50 x 1000 x 0.5 = 25,000 $

2 Years = 2 x 25,000 = 50,000

Return = Q0/Pc = 50000/20000 = 2.5

Missing anything???
4. Calculating Impact (net)

- **Deadweight/counterfactual (DW):** the change that stakeholders would experience in the absence of organisation.
- **Attribution/contribution (AT):** the change attributable to your organisation rather than other organisations.
- **Displacement (DP):** *all* or *part* of the value is not actually created by the activities, but is moved elsewhere.
4. Calculating Impact (net)

- **Deadweight Considered Outcome (DWO):**
  \[ \text{DW}=0.2, \text{ DWO} = \text{OC} - \text{OC} \times \text{DW} = 50 - 50 \times 0.2 = 40 \]

- **Attribution Considered Outcome (ATO):**
  \[ \text{AT}=0.9, \text{ ATO} = \text{DWO} \times \text{AT} = 40 \times 0.9 = 36 \]

- **Displacement Considered Outcome (DPO):**
  \[ \text{DP}=0.0.055, \text{ DPO} = \text{DWO} \times (1-\text{DP}) = 34 \]

- Note that previously we consider benefited OC = 50
5. SROI Calculation

1 QALY =1000, & Loss=0.5, Yearly outcome

First year = project implementation period
First Outcome (second year)
QA1 = DPO x QALY x Loss = 34x1000 x 0.5 = 17,000 $

There will be a drop of outcome during the successive year.
Last outcome with a drop factor D = 0.3

QA2 = QA1 x (1-Drop)= 17,000 x (1-0.3)= 11,900 $

Total outcome QA_i = QA1 + QA2 =28,900

Recall that the investment in the project was 20,000 USD
5. SROI Calculation

In 2 Years Social Return in this outcome is = 28,900

Net Present Value \( Q\text{An}_i = 27721 \)

\[ NPV = \frac{R_t}{(1+i)^t} \]

\( t = \) time of the cash flow
\( i = \) discount rate
\( R_t = \) net cash flow

\[ SROI_i = \frac{Qan_i}{Pc} = \frac{27721}{20000} = 1.39 \]

Similarly find \( Qan_i \) for other outcomes and stakeholders.

\[ SROI = \sum Q\text{An}_i / Pc \]