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Use phase positive social impacts in a local community of a sustainable development center: the case of William R. Sinkin Ecocentro – San Antonio College.

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Abstract

This study aims to demonstrate the potential positive social impacts of a building projected with sustainable premises within the community. The study object is the William R. Sinkin EcoCentro building located in the San Antonio College in San Antonio City-TX, USA. A new approach of life cycle social impact assessment is presented, applied to data inventory collected from specific and primary source. Five subcategories have been evaluated from Local Community Stakeholder. The social impacts are characterized in the Model Type 1, considering the building use phase. However, differently than the traditional S-LCA methodology, this study intends to highlight the positive impacts during the use phase focused to Local Community Stakeholder. Besides Model Type 1 impacts assessment, this study demonstrates the potential coverage resulted of EcoCentro educational events (presentations and workshops) within the neighborhood. Seven events were assessed during February 2019 and the following information was gathered: number of participants, age range, event frequency, type of audience and the level of influence of these members with the community. It was possible to verify that subcategories such as safe and healthy living conditions and community engagement presented more pronounced positive impacts than others, while the subcategory access to material resources had neutral positive impacts. Finally, it can be observed that the EcoCentro brings benefits to vicinity community, promoting the life quality improvement in a determined area.

Keywords: *social life cycle assessment, local community, positive impacts, specific data, sustainable building.*

Introduction

The William R. Sinkin Eco Centro is a community outreach center for environmental sustainability operated by San Antonio College. The center provides an arena for several local organizations and communities to discuss and promote environmentally related events, such as: organic gardening, composting, sustainable building, low impact development, water conservation, native landscaping, healthy living and developing community partnerships. By partnering with local community, other environmental organizations, private industry, governmental agencies, and sustainability experts, the William R. Sinkin Eco Centro furthers its goals of education and advocacy on a local level and beyond.

Based on the foreword, it is important to measure the center social results within its local community. This study, therefore, evaluates the social impacts of this building, projected with sustainable premises to provide specific services to the local community.

As defined by UNEP/SETAC (2009) Social impacts indicators are evidences, subjective or objective, qualitative, quantitative or semi-quantitative being collected in order to facilitate concise, comprehensive and balanced judgments about the condition of specific social aspects with respect to a set of values and goals.

Method

The method includes the phases described below:

- Data collection: primary and specific data were collected using questionnaire and on-site observation (by authors following the events).

- Sampling: Questionnaires were applied in 2017 and observation in February of 2019.

Di Cesare et al. (2018) demonstrates that so far, positive social impacts have been evaluated in a multiplicity of contexts, both related to business and to public policies and they are barely covered in literature. The same authors complete saying there is a clear need of streamlining definition and indicators, especially if they should be applied in a policy context complementing traditional. Moreover, they also affirm that inventory indicators provide the most direct evidence of the condition or result they are measuring. Impact

category indicators are quantifiable representation of an impact category During the on-site observation, a graded evaluation was defined, varying between -2 to +2, according to the influence of the event on the topic as presented below:

1. Community Engagement

Method of evaluation - number and quality of meetings with community stakeholders; diversity of community stakeholders group that engage with the organization.

2. Access to Immaterial Resources

Method of evaluation - presence strength of community education initiatives.

3. Access to Material Resources

Method of evaluation -development of project-related infrastructure with mutual community access and benefits by the organization

4. Safe and Healthy Living Conditions

Method of evaluation - Organization efforts to strengthen community health.

5. Promoting social responsibility

Method of evaluation - Analysis of local weather conditions

As depicted in Figure 1, the Social Impacts a characterization model Type-1 S-LCIA (UNEP/SETAC, 2009) was applied only in relation to stakeholder Local Community and during the phase use.

In the case only qualitative information is available, a description of the situation before and after implementation is provided. When this is not possible, an analysis of the status indicator change should be given (i.e. by analysing the effects rather than measuring the indicator levels).

Table 1 – Score for answers.

|	
+2	Ideal performance
+1	Progress beyond compliance
0	Compliance with local laws
-1	Non-compliant situation, improving
-2	No data, or Non-compliant situation

It is proposed to score the indicators relative to a technological analogy so that conclusions can be made about the impacts with relation to a reference state.

For quantitative indicators, he results are translated to a five-point Likert scale (Likert, 1932). This is an ordinal scale in which both, quantitative and qualitative data, can be processed. A key characteristic of the Likert scale is the ability to provide a symmetrical score, with one neutral assessment in the middle of the available options as described in Table 1.

Effects evaluation was concluded as follow: number of actor, actors' importance, potential influenced geographical coverage, event influence level. It was used these indicators using as reference an approach that remember

fair trade indicators presented by Sala et al. (2015).

Figure 1: Proposal.
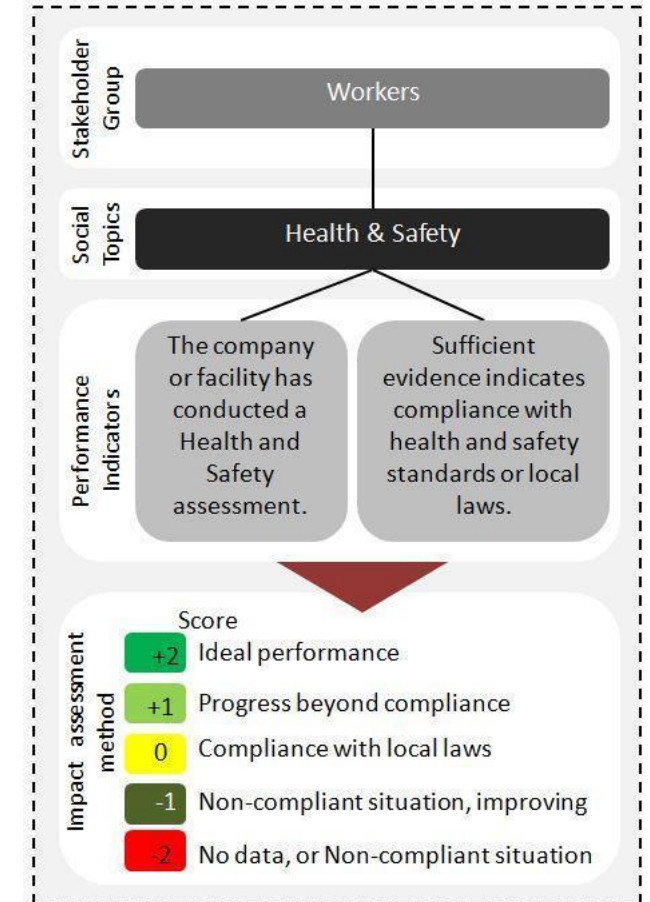
Source: Adapted from Handbook for Product Social Impact Assessment (2018).

In the specific case of EcoCentro, were estimated 5 potential subcategories and 6 performance indicators that might be impacted

ACTIVITIES DESCRIPTION

The activities that have been made in the EcoCentro are listed as follows.

Outdoor and Indoor Activities:

- Workshops: Rain Garden Build Out, Make & Take Rain Barrel Workshop, Bat House Workshop, Drip Irrigation Workshop, Composting Workshop, Master Composter Certification, Irrigation Troubleshooting Workshop, Residential Leak Detection Workshop, Medium to Large Scale Rain Water Harvesting Workshop;

- Presentations: Low Impact Development, Organic Landscapes, Bat Basics, Birding Basics, Air Pollution, Urban Waters, Compost Tea, Value of Water series, Urban Water, and more;

- Events: Garden Work days with Work Out Help Out. Average of 75-100 volunteers per event, at least 4 times annually.
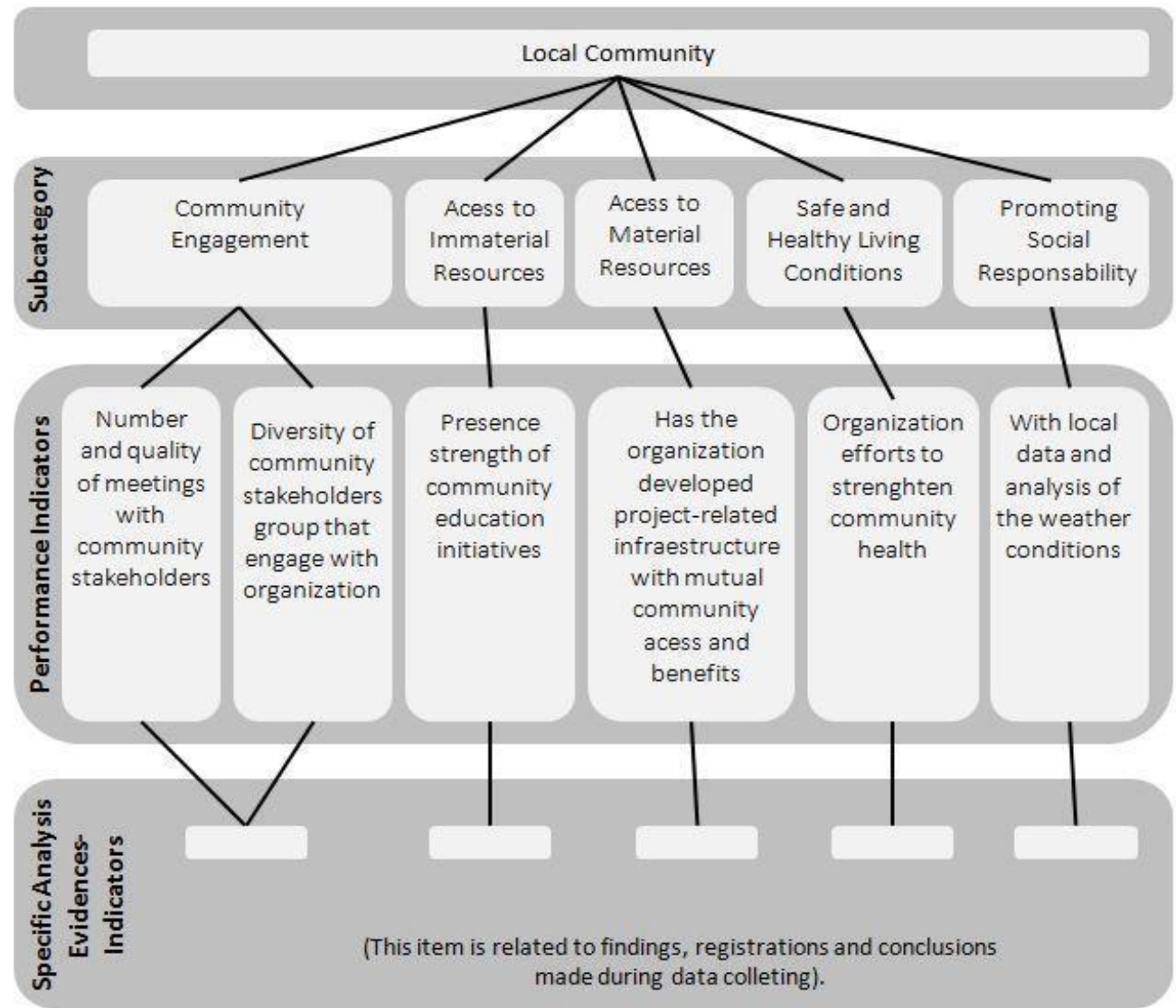
Garden Activities:

- Hand watering or drip irrigating gardens surrounding building;

- Hand watering or drip irrigating large community garden;

- Occasional use of tractor, lawnmower, both gas/diesel-powered;

- Weed eater is electric; but also hand weed in all areas. (limited use of electricity in the garden);

Figure 2: Model used based on the proposal.

Source: Adapted from Handbook for Product Social Impact Assessment (2018)

Number of people involved per activity: anywhere from 8 to 60 people depending on a multitude of factors.

External resources used per activity: roughly 5-10 per event including partnership organizations like the San Antonio River Authority, San Antonio Water Systems, Green Spaces Alliance, and others.

Results

Based on Figures 1 and 2 presented in the methodology, the impacts are presented are following:

1. Live with nature

- Date: 02/07/2019;
- Participants: 15;
- Age: 30 – 96;
- Frequency: One time per month;
- Observation: Nutrition group meets in EcoCentro once in a month;
- External event: https://www.facebook.com/events/5336844837 81952/

2. Nature buds: living in a tree

- Date: 02/11/2019;
- Participants: 2 (it was raining);
- Age: 2 and 4;
- City: San Antonio (near from Eco Centro);
- Frequency: See calendar;
- Paid event;

- Observation: This event is aimed to children from 18 months to 4 years old accompanied by their parents;
- This event occurred at San Pedro Springs Park, near Eco Centro, and was carried out by EcoCentro

3. Gardening class

- Date: 02/18/2019;
- Participants: 9 (first class) (probably this number will increase);
- Age: 25 – 50;
- City: San Antonio (midtown, near Woodlawn lake, downtown and Alamo heights);
- Frequency: Once a month;
- Observation: Free event carried out by EcoCentro.

4. Alamo Sierra Club General Meeting

- Date: 02/19/2019;
- Participants: 10;
- Age: 50+;
- City: San Antonio (midtown, Westlawn, Monticello Park);
- Frequency: Once a month;
- Observation: External Event;
- See Sierra Club website for more information (https://www.sierraclub.org/texas/alamo).

5. Food Policy Council Meeting

- Date: 02/20/2019;
- Age: 25 to 50;
- Participants: 22;

- City: San Antonio;
- Frequency: Once a month;
- Observations: External event;
- See the Food Policy Council website for more details (https://www.foodpolicysa.org/).

6. Meditation Class

- Date: 02/20/2019;
- Age: 25 to 40;
- Participants: 6;
- City: San Antonio (midtown, Westfort, Tobin Hill);
- Frequency: Once a month;
- Observation: External paid event;

7. Nature Bud: wildlife is all around us

- Date: 02/25/2019;
- Age: 18 months – 4 years;
- Participants: 6 (6 kids with their mothers);
- City: San Antonio (near from Eco Centro);
- Frequency: See calendar;
- Observation: This event is aimed to children from 18 months to 4 years old accompanied by their parents;
- Paid event carried out by EcoCentro.

Based on the data presented, it was found that 70 members of the community varying from children aged 2 to seniors over 90 years old participated in the sampled events that happened in February 2019. Such an assessment demonstrates the potential that the Ecocentro

has in terms of local community influence, strengthening the social pillar within the three sustainability dimensions.

It is important to say the activities presented in the results encompass three of seven vital areas highlighted by Sala et al. (2015): health, education and development of services (social

community projects). Sala et al. (2015), also affirm that the most important indicators that Fair trade uses to monitor social impacts evolve around these seven vital areas.
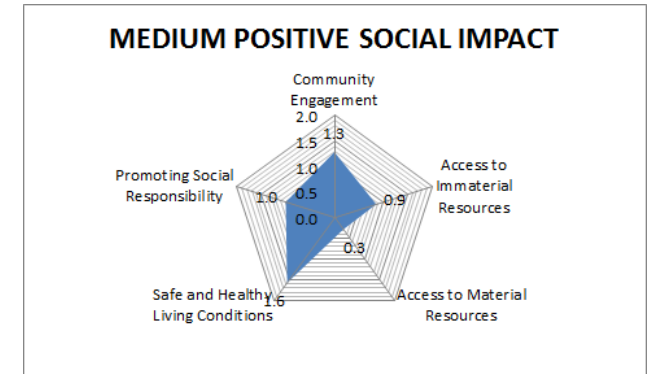
Based in the sampled events, results are tabulated as presents Table 2 and depicted in Figure 3. With regard to the Local Community

stakeholder individually, EcoCentro demonstrates only positive and/or neutral social impacts in relation to the subcategories assessed.

Figure 3: Positive social impacts per stakeholder event.

According to the methodology adopted, the greatest social benefits were found in the subcategories: Community engagement and healthy and living conditions, while the subcategory Access to material resources ended up showing the closest neutral effects.

Final remarks

This study demonstrates that the Social LCA tool can be used to assess the external positive social impact of an organization. As revealed by Petti et al. (2014 apud Di Cesare, 2018; Sala et al., 2015) the unanimity of the authors believes that to research in the context of positive impacts is useful for the general advancement in social impacts. Therefore, this paper contributes to present a methodology that can be added to

Subcategory	Community Engagement	Access to Immaterial Resources	Access to Material Resources	Safe and Healthy Living Conditions	Promoting Social Responsibility
Event	Specific Analysis Evidences-Indicators (Score Impacts)				
Live with Nature	+1	+1	0	+1	0
Nature Buds: Living in A Tree	0	+1	0	+1	0
Gardening Class	+2	+2	+2	+2	+1
Alamo Sierra Club General Meeting	+2	0	0	+2	+2
Food Policy Council Meeting	+2	+1	0	+2	+2
Meditation Class	+1	0	0	+1	0
Nature Bud: Wildlife Is All Around Us	+1	+1	0	+2	+2

Table 2: Positive social impacts per event.

the rationale phase for building construction without taking only into account the economic dimension, bringing information within the social approach. Actually, as said by Petti et al. (2014), there is not shared a deducted concept of positive social impacts as part of the S-LCA methodology.

Therefore, the approach presented in this work contributes to future debates in the context of positive impacts for the general advancement on social impacts. Moreover, Di Cesare et al. (2018) identified two studies cases with positive indicators with existence or presence of activities like observed in this work related to stakeholder local community. They finalize saying that the assessment of positive impacts in the SLCA domain is still in an infant stage considering that they may play a crucial role and also help in addressing negative ones.

Another strong point of this work is related to collected data, because in this case it was made in loco based on observations using also one observer in place of only questionnaires. In this case, questionnaires making use different actors that may cause subjectivity due to the difficult to deal with standardization of positive impact using several sources and perceptions.

Finally, it can be noticed that EcoCentro aims to go beyond environmental issues, also pursuing to expand and cover social issues. For instance, it is possible to say that four of these seven events are related to "education issues" and as said by Di Cesare et al. (2018), in particular, the

midpoint "level of education" affected the economic welfare by the direct impacts of job and working situation via inventory categories like finished apprenticeships or literacy rate. All of this positively influenced social well-being.

As a manner to continue with this work, data triangulation will be carried out through Alamo's personnel questionnaires in order to further obtain about the social impacts of Eco Centro.

Also, other sustainability dimensions shall be evaluated to verify whether the building accomplishes its objectives.

Acknowledgements

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