Library Environment Sustainability Progress Index (LESPI): Benchmarking Libraries' Progress Towards Sustainable Development

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Abstract:

IFLA's demands to be co-custodian of the UN Agenda for Sustainable Development provides tremendous opportunity for libraries' transformation into the future, but it comes with a huge obligation. The 2030 UN Agenda includes 17 Sustainable Development Goals and 169 specific targets addressing the economic, social, and environmental dimensions of sustainable development. There is no doubt that we are in the phase where transformative change is necessary for libraries regarding sustainable development. However, most libraries have insufficient data to assess whether they are on track to achieve the Sustainable Development Goals. Therefore, this paper presents a "Library Environment Sustainability Progress Index" (LESPI) which can be used as a benchmarking tool for any library to assess their compliance with the goals. In order to compile the Index, the 169 concrete targets were carefully examined and 46 of them selected for inclusion in the LESPI. The proposed measure has been pilot tested with a college library in New York. This measure should be tested with another library, perhaps with a public library, to monitor the feasibility of the Index. Moreover, creating a "composite score" for three major components of the Triple Bottom Line (TBL) equation as well as for the Index in general would be beneficial to make more informative comparisons in the future with other libraries.

Keywords: Sustainable Development, Environmental Sustainability, UN 2030 Agenda, Library Environment Sustainability Progress Index.

Introduction

There are more than 320,000 public libraries and, in addition to this number, there are more than a million different types of libraries including, national, university, research, school, special and parliamentary libraries in the world (IFLA 2019). Libraries are at the center of the society and they can play a vital role in transforming our world towards a sustainable future. However, the main question here is how to integrate sustainability into everyday library

business activity. The 2030 UN Agenda for Sustainable Development provides tremendous opportunity for libraries' which includes a set of 17 sustainable development goals (SDG) with 169 specific targets adressing the economic, social, and environmental dimensions of sustianble development (see Table 1) (The United Nations 2019).

Table 1: The 2030 Agenda for Sustainable Development 17 Sustainable Development Goals (SDG) Source: UN 2019

Goal 1. End poverty in all its forms everywhere
Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
Goal 3. Ensure healthy lives and promote well-being for all at all ages
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
Goal 5. Achieve gender equality and empower all women and girls
Goal 6. Ensure availability and sustainable management of water and sanitation for all
Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all
Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
Goal 10. Reduce inequality within and among countries
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable
Goal 12. Ensure sustainable consumption and production patterns
Goal 13. Take urgent action to combat climate change and its impacts
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

A substantial amount of research focused on and examined these 17 SDGs and targets for transformation of libraries towards a sustainable future. Particularly, the International Federation of Library Associations and Institutions (IFLA) presented numerous reports including a very well known "Data and the Sustainable Development Goals" briefing which prompted demand for more environmentally and socially considerate libraries (IFLA N.d.a). However, in order to integrate sustainability into everyday library business activities we need to benchmark where the libraries are today and how far we have to travel. One must acknowledge that IFLA's demand provides tremendous opportunity for libraries' transformation into the future, but it comes with a huge obligation as well. There is no doubt that we are in the phase where transformative change is necessary for libraries regarding sustainable development. However, most libraries have insufficient data to assess whether they are on track to achieve the Sustainable Development Goals. Therefore, this paper presents a "Library Environment Sustainability Progress Index" (LESPI) which can be used as a

benchmarking tool for any library to assess their compliance with the goals. In order to compile the Index, the 169 concrete targets were carefully examined and 46 of them selected for inclusion in the Index. The selection of this 46 indicators based on whether if they are directly related to library information services or not. After the selection process, a corresponding "library friendly indicator" created for each of these 46 indicators (Table 2).

Table 2: Goal 1 and selected 3 indicators and their corresponding library friendly indicators Source: UN 2019

Goal 1. End poverty in all its forms everywhere	Indicator	Library Friendly Indicator
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	1.4.1 Proportion of population living in households with access to basic services	Library Cards
	1.5.2 Direct economic loss attributed to disasters in relation to global gross domestic product (GDP)	Library and information services for the poor and those in vulnerable situations
1.b Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions	1.b.1 Proportion of government recurrent and capital spending to sectors that disproportionately benefit women, the poor and vulnerable groups	Having library service policy regarding required information services for women, the poor and vulnerable groups

Please see the spreadsheet in Appendix for the selected indicators and complete list of corresponding library indicators under the lens of Elkington's (1994) Triple Bottom Line (TBL) paradigm of (1) economy or profit, (2) environment or planet, and (3) society or people. This paradigm enables us to see any type of sustainability issue through the special lens of three major components of stakeholders: social constraints, economic impact, and the environmental consequences of an issue. Furthermore, the author consulted with the professor of economics for the validity of the library friendly indicators corresponding with economy or profit related SDGs. The professor of Earth and Environmental Science also consulted for the library friendly indicators corresponding with environment or planet component for the equation. Since sustainability is a multidisciplinary research field one must consult with the experts for the purpose of creation such an index. We can see Figure 1 for the representation of Elkington's

TBL paradigm and its multidisciplinary nature. One must present progress in all the components of the equation to reach the goal of "sustainability."

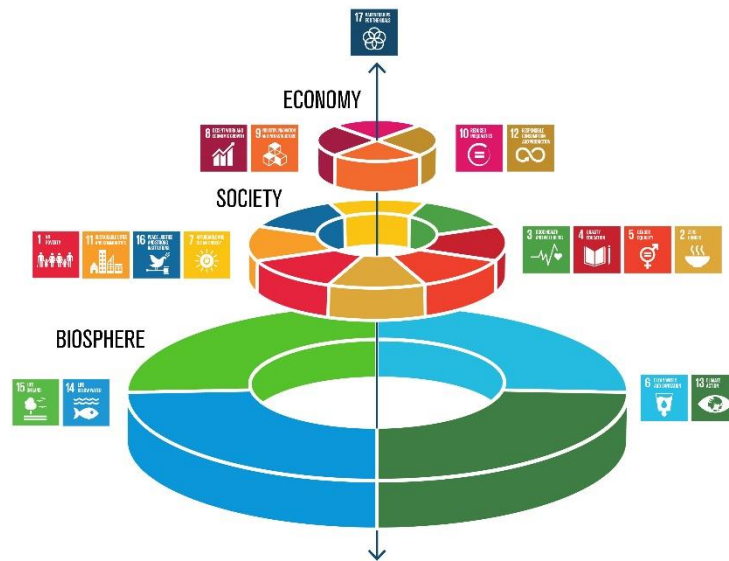**Figure 1. Elkington's Triple Bottom Line (TBL) Paradigm Source: Elkington 1994**

Furthermore, Rockstrom and Sukhdev (2016) presented a wedding cake structure of SDGs which can be used to aggregate these 46 specific "library friendly" targets into the three layers for visual display. In the wedding cake structure, we can also see each SDG imbedded in three major components as in Elkington's equation. This can provide an in-depth visual display of each SDG and how it is placed in Elkington's TBL paradigm (See Figure 2). Therefore, the following visual representation will be used to display the results of this pilot testing as well. One must note that the table below uses "biosphere" in lieu of the environment or planet component of the equation and has 4 major environmental SDGs: Goal 6. Ensure availability and sustainable management of water and sanitation for all, Goal 13. Take urgent action to combat climate change and its impacts, Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development and, Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

The society has 8 SDGs: Goal 1. End poverty in all its forms everywhere, Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture, Goal 3. Ensure healthy lives and promote well-being for all at all ages, Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, Goal 5. Achieve gender equality and empower all women and girls, Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all, and Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable.

The economy has 4 SDGs: Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation, Goal 10. Reduce inequality within and among countries, and Goal 12. Ensure sustainable consumption and production patterns. The final and the 17th SDG, which is Goal 17 "Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development" has been placed on the top of the wedding cake structure.

Figure 2. Rockstrom and Sukhdev Wedding Cake Structure of SDGs Source: Rockstrom and Sukhdev 2016

Our earth is in a precarious situation due to large-scale thresholds being reached such as ozone depletion, ocean acidification, climate change, population growth, and unsustainable life style, and we need to take immediate transformative action towards a sustainable future. We have to adopt these 17 SDGs into our library business models so more libraries may transform their services with an aim for sustainable development. Benchmarking is a useful practice which has been used to identify gaps by libraries for decades (Aytac 2001). Therefore, this paper presents LESPI which can be used as a benchmarking tool for any library to assess their compliance with the goals. The proposed LESPI measurement tool has been tested for its validity with the Long Island University Post Campus B. Davis Schwartz Memorial Library and the results are presented in the findings section of this paper. Furthermore, IFLA, American Library Association (ALA), and New York Library Association (NYLA) policies regarding environmental sustainability have been examined in regards to 17 SDGs in this study.

Literature Review

Although emergence of sustainability as an interdisciplinary research field dates from the beginning of 2000s, the idea of sustainability goes back to the 18th century. According to Taylor (2012), Thomas Robert Malthus introduced the idea of sustainability in 1798 with an essay on the principles of population. However, we see that the UN Conference on the Human Environment, which was held in 1972, was one of the most influential events towards the understanding of the concept of "sustainable society" (Dresner 2008). Consequently, we see the term "sustainable development" emerge in the World Conservation Strategy in 1980 by "International Union for Conservation of Nature and Natural Resources." However, the United Nations Conference on Environment and Development, also known as the "Earth Summit" held in 1992, and the idea of "sustainable cities," became an international motto for sustainable development in 2002 with the "Melbourne Principles." Finally, the single most important event in the chronology of the idea of sustainability was presented by the National Science Foundation in 2009 (Taylor 2012).

In the library literature, we see the first published works focused on environmental sustainability and how libraries can help create sustainable communities by controlling libraries' energy consumption (Weiner and Boyden 2001). Furthermore, the American Library

Association (ALA) received a grant from the US Agency for International Development to distribute "Libraries Built Sustainable Communities" book to member libraries (Stoss 2003). Greening libraries and reducing their environmental impact by providing environmentally sustainable practices is discussed by Monika Antonelli (2008). In her paper, we also see the concept of "reducing carbon footprint" of libraries has been introduced to librarians as an environmental sustainability requirement. However, one of the first papers discussing social and cultural sustainability was published in late 2011 in Library Trends (Edwards 2011). In the same vein, Aulisio (2013) discussed the importance of learning sustainability for librarians. In the very same year, the ALA RoundTable formed in 2013 whereby the ALA emphasized libraries strong advocacy for equality in connection with a "Library Bill of Rights" which was adopted in 1939 (Beth et al. 2015).

In 2018, we see an increasing number of articles written in the library science literature addressing the UN SDGs which was adopted by all United Nations Member States in 2015 (Espey, Lafortune and Schmidt-Traub 2018; Mc Donnel and Mahotra 2018; Miller 2018; Mojapelo 2018; Oyelude 2018; Scheeder 2019). Shaffer (2018) examined the TBL paradigm of sustainability and suggested a sustainability framework for public libraries. The 2030 UN SDGs provide an opportunity to transform library and information services. Under the light of these sustainable development goals, libraries and librarians can serve their communities better. SDGs are a universal call to action to protect the planet under stress. However, more integrated and coherent policies are needed.

Related Policies

Since the pilot testing venue is located in Long Island, New York, three major library organizations', namely IFLA, ALA, and NYLA, policies regarding sustainability were examined. IFLA is the leading international body representing libraries worldwide. IFLA is promoting sustainability among the members through multiple publications especially with the electronic reports. One of the recent publications targeted UN SDGs and examined most of the SDGs with an interest to library services (IFLA n.b.). In this publication, IFLA suggests using some of the indicators for monitoring the libraries' development. Moreover, IFLA also dedicated its 2019 annual conference theme to the UN SDGs.

In terms of national level, the American Library Association (ALA) is the governing body for the libraries of the United States. ALA's resolution on the importance of sustainable libraries clearly states that ALA, "recognizes the important and unique role libraries play in wider community conversations about resiliency, climate change, and a sustainable future and begins a new era of thinking sustainably in order to consider the economic, environmental and socially equitable viability of choices made on behalf of the association" (ALA 2015). By doing so, ALA actively supports sustainable development and inclusion of libraries towards a green future. A specific ALA roundtable, the "Sustainability Round Table", was held to promote ideas and opportunities regarding sustainability.

In the same vein, the library organization of New York libraries is the New York Library Association (NYLA), and this organization is also closely monitoring sustainable development and presenting policies regarding environmental sustainability and a strategic plan regarding building sustainable communities (NYLA 2019). The aforementioned three major library associations clearly support sustainable development and inclusion of libraries in this worldwide endeavor. However, there is no specific bechmarking tool presented in any of these policies that focused on sustainable development.

Methodology

In order to test the Index, a private college library, the LIU Post B. Davis Schwartz Memorial Library, was chosen as a convenient sample. Library services both in person and online were investigated to see whether they are meeting the corresponding *library friendly indicators*. This was the decision-making criteria employed to determine whether any given indicator is assigned a "1" or a "0." Consequently corresponding indicator has been marked "1" for yes and "0" for no. While some of the library friendly indicators are easy to observe, such as "Library and information services for the poor and those in vulnerable situations" for the SDG 1 End poverty in all its forms everywhere, some of the others were difficult to measure, such as "Communicate policies to public/share the dates for townhall meetings with public" for the SDG 6 Ensure availability and sustainable management of water and sanitation for all. The author's 17 years of relationship with the institution and the consultation with two experts helped to speed up the process. One must be very familiar with the test bed institution in order to examine the availability of the services and products related to each library friendly indicator to provide accurate assessment. Furthermore, benchmarking should be done by a group of experts including a specialist representing the each component of the TBL equation. The aggregated results are presented by using both Elkington's TBL diagram and Rockstorm and Sukhdev's wedding cake structure in the findings section.
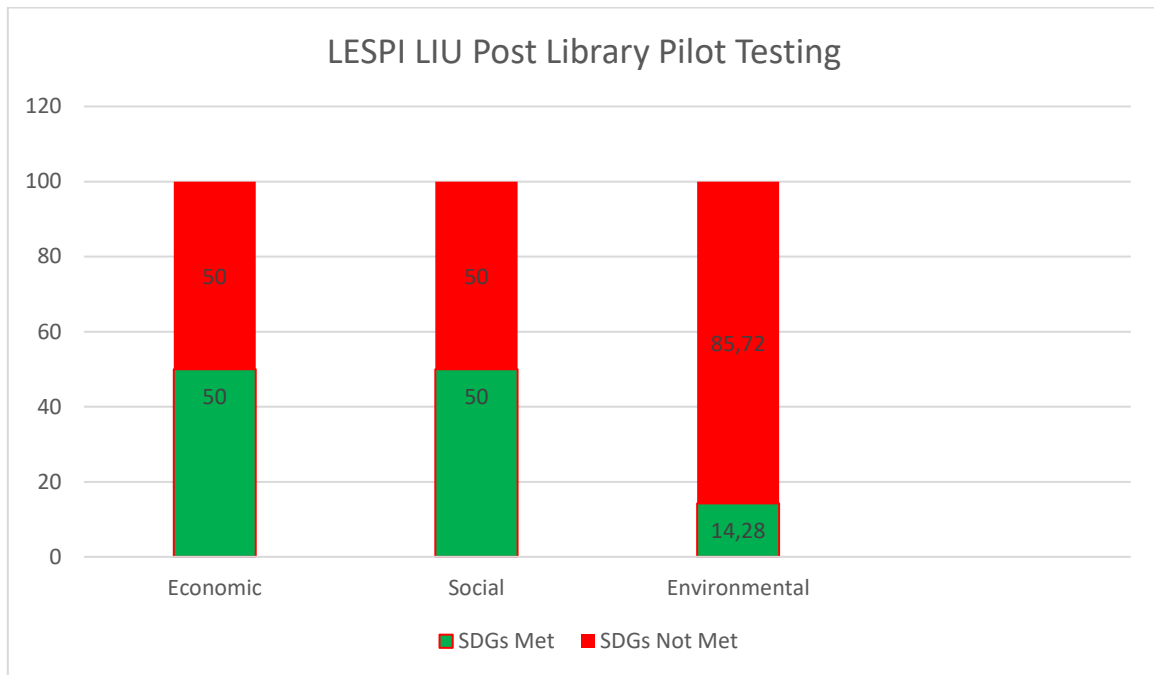
Findings

The proposed measure has been tested for the services of Long Island University Post Campus B. Davis Schwartz Memorial Library. The results indicated that 6 out of 12 economic, 11 out of 22 social, and only 1 out of 7 environmental UN 2015 SDGs are currently being met by the library (see Figure 3).

Figure 3.   Library Environmental Sustainability Progress Index (LESPI) Sample in TBL Equation
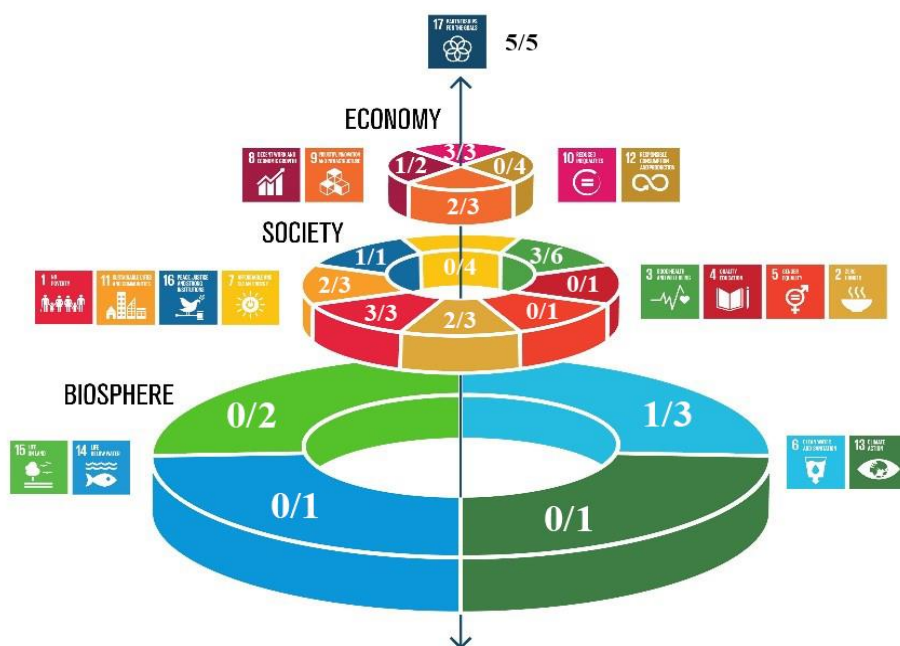

In other words, LIU Post library only met 50% of economic, 50% of social, and 14.28% of environmental LESPI goals (see Figure 4). Based on this analysis, this particular institution is on track to achieve the SDG targets, however, it is in need of speed up the growth for economic, social, and environmental factors to reach global targets.

Figure 4. Library Environmental Sustainability Progress Index (LESPI) Sample for 2030 UN Sustainability Goals

Elkington's TBL framework displays 16 out of 17 SDGs seamlessly; however, the 17th SDG, which is "Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development", does not fit in any of these three categories. For this purpose, we can use Rockström and Sukhdev's "wedding cake" structure of SDGs. Please see Figure 5 for this display.

Figure 5. Rockstrom and Sukhdev's (2016) Wedding cake structure of SDGs

Conclusion

Based on the literature review and the policies produced by three library organizations, we can conclude that libraries are ready to become the heart of worldwide sustainability efforts. However, there is a compelling need for an effective assessment tool which can measure libraries' performance. This study proposed a "Library Environment Sustainability Progress Index" (LESPI) which can be used as a benchmarking tool for libraries. For doing so, we created 46 *library friendly indicators* and conducted a pilot test of this Index with a library to see sustainability issues through the special lens of three major components of the TBL. The test showed in terms of results while 6 out of 12 economic and 11 out of 22 social SDGs met, only 1 out of 7 environmental UN 2015 SDGs are encountered by this testing institution. According to Vygotsky's (1972) Activity Theory, human actions can be understood and studied precisely only within a context that gives them sense and meaning. Perhaps this may be result of a weak interest towards environmental sustainability by the Long Island region. International databases such as Bloomberg should be consulted for further environmental risk analysis for the Island.

This measure should be tested with another library, perhaps with a public library, to further test the feasibility of the Index. Moreover, creating a composite score for three major components of the equation as well as for the Index in general would be beneficial to make more informative comparisons in the future. IFLA should establish a mechanism to encourage their member institutions in generating such data for these selected 46 indicators of 2030 UN Agenda. Most importantly, we have to build a strong library culture where sustainable development embedded into everyday library operations. Since the library science professionals closely committed to provide a better future for society, sustainability is also important in terms of our happiness and long-term job satisfaction.

Acknowledgments

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