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# Addressing Development Through Social Entrepreneurship – Case of Protoprint

Social entrepreneurship is a field of research study dealing with social value creation and inclusive growth. Social ventures basically have social growth and reinvest their surplus to support their mission. Clubbing the idea of social entrepreneurship with sustainability, can lead to miraculous positive benefits for the society. It can lead to creation of a large number of employment for the lower class of the society and environmental benefits (in this case) for all levels of the society. Various scientific resources have been investigated in order to form a conceptual framework. The study evaluates the sustainability by assessing patterns on employment and involvement statistics of work integration social venture. The following empirical study is mainly limited to the Indian market. The results reveal that, newly founded social ventures have better survival rates. If proper efforts taken, sustainability can actually bring huge profits to organizations. Social entrepreneurship along with sustainability, is a relatively new field characterized by overall higher flux of exit and entry. Also, established social enterprises are more likely to employ and reach more people. Keywords: social entrepreneurship, sustainability, work integration, social enterprises.

## Introduction

Social entrepreneurship (SE) has become one of the most outstanding social tenor in the contemporary years. The 2006 Nobel Peace Prize Award to Grameen Bank and its founder Muhammad Yunus “for their efforts to create economic and social development from below” signified the contribution of the social venture to peace framing and progress around the world (nobelprize.org). Inequality can be a reason for tensions and instability. That is why comprehensive growth benefits to peace. Sustainability of social enterprises is an area that has not been adequately explored on a scientific basis. Therefore, more research has to be conducted to divulge one more aspect of the social entrepreneurship “rattle”. The research question of this research paper can be drafted in the following way: Can sustainable development be achieved by social enterprises? The research question will address both financial and impact aspects of sustainability. The research will shed light on existing challenges that may hinder the progress of social entrepreneurship as a separate and credible field. The research methodology in this paper consists of the case study of a Pune based organization “Protoprint”.

### About “Protoprint”

The “Protoprint™” Initiative is a Pune based initiative which started in 2014 as an independent venture to develop a 3D printing filament from plastic waste. The venture transformed into a social enterprise, “Social Seva Initiatives” in collaboration with the “SWaCH” cooperative along with technical support from the National Chemical Laboratory (NCL) – a Council of Scientific & Industrial Research India’s (CSIR) laboratory. Social Seva Initiatives has set up a low-cost production facility operated by SWaCH waste-pickers in Kothrud, Pune. The SWaCH cooperative of the informal waste-pickers was formed in 2008. Since then, SWaCH has enabled over 3025 women waste pickers to become service providers for the door-to-door collection of

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municipal solid waste (MSW) from over 6,00,000 households and recycled nearly 50,000 metric tons annually. They have received support from Pune Municipal Corporation (PMC) through allocation of land for collection and segregation and authorisation to undertake door-to-door collection of MSW waste for all properties by integration of the informal sector. SWaCH continues to positively impact environmental and financial well-being of the society by integrating the informal sector workers and showcasing an inclusive model for the country.

### Definition of Entrepreneurship

Before we discuss social entrepreneurship we have to define entrepreneurship itself. For that matter we have to refer back to the researchers who composed the term. One of the first definitions is tracked back to 19th century French researcher Jean Baptiste Say. According to him, "the entrepreneur is an actor that shifts economic resources from the areas of lower productivity to the higher ones". Another and supposedly one of the most influential economists, Joseph Schumpeter says, this process is facilitated "by exploiting an invention or, more generally, an untried technological possibility for producing a new commodity or producing an old one in a new way, by opening up a new source of supply of materials or a new outlet for products, by reorganizing an industry and so on". Additionally, Peter Drucker glorifies entrepreneurs as change seekers and opportunity exploiters.

**Definition of Social Entrepreneurship:** Social enterprises have a central social mission and they re-invest profits to support those special goals. "Translation of social opportunities into an enterprise concept is a part of the social entrepreneurial process". However, for this type of entrepreneurs social objectives come first and commercial skills are utilized later to achieve those aims.

**Definition of Sustainable development:** The basic definition of Sustainable Development says "Sustainable Development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs."

### Need or Relevance of the Study

Growth is an important factor. But, it is crucial to consider the equality side of growth around the world. For instance, in today's world, there is an uneven distribution of wealth and basic resources among the masses. It is therefore, necessary to find sustainable solutions to all these questions. Global priorities of spending in developed and developing countries are different. Funds allotted for basic education, water systems, health care in developing countries are far from being enough in any respects. Charity, social services and philanthropy have helped to tackle some of these kinds of crucial problems. Sustainable development and Corporate Social Responsibility have addressed more of root causes of these problems. Later social entrepreneurs who are on the self-actualization phase started to assist people who are on lower levels of Maslow's hierarchy of needs.

"Protoprint" is one such initiative that tackles the root causes of some of these problems. The firm scrutinizes a sensitive issue of plastic waste disposal and reuse.

Plastics have become a vital asset for humanity. Though extensive research and new technologies have led to invent of newer and safer plastics, but drawbacks and challenges of plastics have never been resolved and impact is on the rise. Some of the major compounds of plastic (vinyl chloride, dioxins, and plasticizers) are causative factors for a large number of diseases including cancer. The harmful effects can also be seen in newborns via mothers during pregnancy or young children exposed directly.

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Recycling, smarter sorting, energy efficient ways, are some of the present era needs. The organization has also been a ray of hope for the waste-pickers of Pune.

The “SWaCH” cooperative of the informal waste-pickers was formed in 2008. Since then, SWaCH has enabled over 3025 women waste pickers to become service providers for the door-to-door collection of municipal solid waste (MSW) from over 6,00,000 households and recycled nearly 50,000 metric tons annually. They have received support from Pune Municipal Corporation (PMC) through allocation of land for collection and segregation and authorization to undertake door-to-door collection of MSW waste for all properties by integration of the informal sector. SWaCH continues to positively impact environmental and financial well-being of the society by integrating the informal sector workers and showcasing an inclusive model for the country. It is a crucial part of the study to understand how this portion of the society has been affected by the efforts of “Protoprint”.

In order to get a complete scenario different methods of research methods were entitled. Literature review and explorative research studies were conducted to sophisticatedly study the question of concern.

Literature review was used as a preliminary method of research. Most relevant and reputable scientific resources –research papers, journals and books related to the topic, were considered for analyzing and comparing. A majority of data in accordance to sustainability was viewed and the same was utilized to decide the path of research. Data related to social entrepreneurship was studied in order to understand the clear definition and meaning of social entrepreneurship also literature related to “Social Entrepreneurship for Sustainable Development“ was studied specifically to understand the know, how of the subject. Also, standard references and publications, related to management and the research question, were taken into consideration as and when required. It helped to enhance and explore the existing knowledge platform about the research topic, get an in-depth insight of the current situation and knowing the existing challenges in regard to the sustainability of social ventures.

In order to know how sustainability can be beneficial for the society and organization named “Protoprint” was considered for the case base research. The company is a social enterprise under “Social Seva” that produces 3D printing filament from plastic waste. The venture initially focused only on the re-use of plastic waste into filaments but later transformed into social enterprise. The initiative works in collaboration with “SWaCH” which is an informal cooperative of waste pickers. In order to study the employment figures of the organization taken into consideration, a questionnaire was sent to the concern authorities of the organization in order to get an insight in the topic of consideration. The questionnaire mainly consisted of questions relating to the sustainability and a social entrepreneurship. How the initiative has transformed the lives of the waste picking community of “SWaCH” was also a major point into consideration along with the achievements, challenges and future scope of the organization with regard to the re-use of the plastic waste.

### Analysis and Interpretation of Data

The study helped to understand the basic meaning of social entrepreneurship, sustainability and interconnection of the two. “Protoprint” is organization that is still in its developing stages. The firms proves to be the bridge between a sensitive environmental issue of plastic waste and a major downtrodden part of the community. Globally, the 3D printing market is growing rapidly

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with a substantial share of 3D printing materials. Main users of the 3D printing technology remain the small companies in research and education including designers, architects, and service providers. 3D printing procedure of additive manufacturing is expected to be more ecologically sustainable as it involves lower input materials and negligible waste generation. The extrusion-based process of manufacturing also offers possibilities for establishing a close-loop recycling system whereby the end-of-life plastic products can be converted back into filament for production.

Thus, enlarging the scope for innovation in recycling of materials. The “Protoprint”™ technology converts the high-density polyethylene (HDPE) plastics into the 3D printer filament. As a first step, the segregated and cleaned HDPE plastics are fed into flaking machine called the FlakerBot. The plastics flakes are then melted in the RefilBot and extruded and pulled to form 1.75 mm and 3.0 mm diameter filaments. The process enhances the value created from the waste plastics for the waste pickers by recycling it into a higher value product. Usually SwaCH members sell the HDPE plastic waste to scrap dealers at the rate of approximately Rs. 19/kg depending on the market price. By converting the same waste into filament, the value-added is at least six to eight times higher. The “Protoprint” model ensuring that the profits generated by the sale of this filament flow back to the community. The product, thus produced, can be used as an ethically produced alternative to virgin plastic filament. [image: ] Figure 1: Conversion of HDP plastic waste into 3D printing filaments.

## Findings

While the waste-pickers offer valuable services to society and economy by tackling the menace of plastic waste and pollution, the waste pickers do not benefit from the value created by recycling of plastics by actors higher in the value chain. “Protoprint”™ - a Social Seva Initiative aims to bridge this gap through: Social Transformation through women’s empowerment by reskilling waste-pickers towards generation of sustainable livelihoods.

Environmental benefits by showcasing a Low-cost technological solution promoting Circular Economy by converting HDPE waste into filament to replace virgin plastic filament for 3D printing. The Extended Producer Responsibility (EPR) compliance of the plastics and packaging can also be achieved by the producer companies and brands by promoting this technological innovation and socially inclusive model which contributes to their business sustainability objectives as well. Economic empowerment by ensuring linkages between the waste picker community and business for developing economic viability through higher profitability as HDPE plastic is converted into a value-added product. Internationally, many models like Thunderhead by TechforTrade in UK, The Plastic Bank in Canada, the Perpetual Plastic Project in collaboration with Plastic Whale in Amsterdam have been set up. These models combine existing systems of waste collection with innovative solutions for enhanced livelihood options including producing 3D filament from waste plastics. In India, “Protoprint”™ is the first initiative of its kind that integrates the bottom-of-pyramid waste pickers collecting plastic waste with the extrusion-based technology to convert plastic waste into value-added 3D filament.

Thus, the “Protoprint”™ initiative aims at enabling the sustainable livelihood generation through facilitating community linkages with the businesses for 3D printing by promotion and marketing of the ethically produced value-added 3D printing filament made from plastic waste. They also provide opportunities for businesses to fulfill their EPR and CSR commitments by supporting this unique initiative.

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## CONCLUSION

Sustainability of a social enterprise, as suggested by the literature review, is a complex issue. The field is relatively new and a lot of time will be needed to assess the long term success rate of social ventures. But this concept of “Social Entrepreneurship for Sustainable Development” can prove to be a budding seed in terms of both social entrepreneurship and sustainability. Both the aspects can prove to be a success if carried out together.

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