SUSTAINABLE ORGANIZATION AND OPERATIONAL IMPACT

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ABSTRACT

This article on organizational sustainability is divided in to two parts: PART I discusses the problem of how sustainability approach helps an organization to meet its mission and objectives efficiently and effectively based on the various sustainability criteria. PART II discusses how the operation of an organization affects the three major sustainability areas of environmental, social and economic aspects. This article discusses the concept of sustainability through a case study of a non-profit organization called DKCCDC, based in Santiniketan, West Bengal, India of which the author is the founder and director which has helped him to conceptualize and organize the data and implement the sustainability concepts in greater detail on a first hand basis. The concept detailed here is equally applicable for both profit and nonprofit organizations. PART II discusses the problem of how to calculate Green House Gas Emissions and carbon footprint and how to mitigate the impact of Carbon and Green House Gases as well as consider renewable energy towards carbon reduction strategies and convert footprint in to handprint. Ultimately, the article addresses the problem of how to make an organization sustainable in terms of reaching its goals as well as meeting operational sustainability requirements. This article is based on a study the author conducted as part of his sustainability certification of Harvard University, USA.

Key words: Sustainability, Social License to Operate, Carbon Foot print, Green House Gases, Hand Printing

PART I

Organizational sustainability refers to achieving organizational missions and objectives efficiently and effectively with due consideration to stakeholder interests. Following method describes how this can be achieved:

1. INTRODUCTION

The sustainability method is presented here through 16 elements/sections namely: Organization and Internal context, setting objectives, Understanding the external context , Engaging with stakeholders , Social license to operate , Governance and leadership–sustainability policy, Risk Assessment, Financial sustainability, Resources and Operating System, Sustainability Program, Value Chain Model to Scope Measurement, Monitoring and Measurement, Transparency and accountability, Maturity process and Improvement and Innovation are the comprehensive and good way to implement sustainability as these elements cover all possible scenarios and situations and risks to ensure a sustainable organization. However, whole hearted implementation of these elements are essential together with self assessment and PDCA to check at what level of sustainability maturity the organization is and continuously improve to reach the highest level (level 5) of maturity, to achieve full scale sustainability. Through this approach, sustainability can be built in to the process of an organization and not as a separate activity.

2. ORGANIZATION AND INTERNAL CONTEXT

Approach to overview of the organization will include the name of the organization, where it is located, its purpose, mission , the services it offers, its assets, employee make up, facilities, core competencies, organization structure and governance, its key stakeholders, its competitive environment and strategic context, operating environment, organizational relationships and sustainability environment.

Overview of the Community will include the demographic nature of the community in terms of location, male/female ratio, literacy rate, climate, economic status/wealth, main industries, income distribution and equality, no. of schools and hospitals, as well as the political, social, economical, technological environmental and legal environment.

Approach to internal context is as follows:

Internal context include mission statement, objectives, leadership styles, and its organizational culture, organization's operating environment, as well as

- Policies for sustainability
- Capabilities – resources and knowledge (e.g. capital, people, processes and systems)
- Decision-making processes including sense making and knowledge management
- Systems adapted by the organization centered on the plan-do-check-act model
- Organization's contractual relationships that involve adherence to a supplier code of conduct as a condition of doing business with another organization, determine all the activities, products and services, apply SWIFT (Structured What If Techniques) and SWOT analysis.

Therefore, the factors associated with the internal context should be identified and then SWOT will be used to find the opportunities and threats. Thereafter, risk assessment process is to be used to find the opportunities that need to be embraced and the threats that need to be avoided.

The aforementioned is implemented in DKCCDC as follows:

a. Organizational Operating Environment		**DKCCDC** is located in a small town of about 0.5 million people called "Bolpur" in the State of West Bengal in India. It has a literacy rate of 60%. Male literacy rate is 60% and female literacy rate is 40%. Male to female ratio is: 50:50. In economics term, about 10% of the population is considered to be rich, 50% Middle class and 40% poor.
1) Product/Service Offerings		DKCCDC offers health care services including free consultancies, medicines and diagnosis, Mobile Medical unit, education (coaching school of Grade V to XII) and vocational training for employment, who come to DKCCDC completely free of cost. DKCCDC also does environmental protection and civic works through its customers (i.e. students of the school) for better and greener environment.
2) Vision/Mission/Core Values/Purpose/Core Competencies		The **mission** of DKCCDC is to improve health care for the poor, help eradicate illiteracy and reduce unemployment in the community. DKCCDC **core value** is to uplift the condition of the poor and bring them at par with the mainstream of the population in terms of health, education and financial condition and empowerment of the poor to improve the overall sustainability of the community. Its Values are: • Compassion • Innovation • Empowerment and Equality • Opportunity to all
3) Staff/Volunteer/Member Profile		There are about 50 staff working in DKCCDC. There are no volunteers among the staff. The staff consists of 10 Physicians, 20 teachers, 12 trainers for vocational training and 6 administration staff including accountant.
4) Assets – Facilities, property, equipment, technology		DKCCDC operates in 3 separate buildings one each for health clinic, education and vocational training. It has all the modern equipment for vocational training and computers for education as well as a vehicle for Mobile Medical Unit
5) Regulatory Requirements		DKCCDC operates under the legal requirement of Govt. of India and has the necessary legal license to operate.
b. Organizational Relationships		
1) Organizational Structure/Governance		The organization structure is according to the Memorandum of Association of DKCCDC which includes President, Vice President, Treasurer, Secretary and 5 Members and is according to the legal requirement. The owner is also the President of DKCCDC and completely funds the full operations of DKCCDC.
2) Stakeholders (including customers)		Main Stakeholders are: 1. Customers i.e. the poor and destitute who come for service to DKCCDC 2. Neighbors in the community where DKCCDC operates 3. Suppliers: Mainly medicines suppliers, computer and book suppliers as well as suppliers of clothes for tailoring school. 4. Government who audits the operations of DKCCDC to ensure they are in line with DKCCDC Mission 5. Employees and staff 6. Towns outside Bolpur

		7. Other NGOs/Competitors
		8. Volunteers
3) Suppliers and Partners		1. Mainly medicines suppliers and book suppliers as well as suppliers of clothes for tailoring school.
		2. Medical equipment suppliers
		3. Computer suppliers

Organizational (strategic) Situation for DKCCDC is as follows:

a. Sustainability Environment		
1) Competitive Position		There are many Non-Government organizations in Bolpur. But competitive position of DKCCDC is very good as it offers services with highly qualified staff and very good facilities all at free of cost.
3) Comparative Data		Comparative data is available on competitors' websites. There is no direct comparative data though as DKCCDC always has the competitive advantage over others as it provides all services completely free of cost to its customers and not dependent on outside funding which no other NGO in the area does.
b. Strategic Context		Strategic context and advantage of DKCCDC is based on providing high quality service free of cost to the underprivileged of the society on a continuing basis.
c. Sustainability Program		Main sustainability program of DKCCDC is continuous improvement of its services through improved quality, new services, improved relationship with its stakeholders to ensure customers (poor patients and students) keep taking the services of DKCCDC as well as ensuring long term availability of finance so that DKCCDC can continue operation for a long time to come.

3. ESTABLISHING OBJECTIVES

Overarching and operating objectives of DKCCDC are as follows:

DKCCDC's overarching and operating objectives are stated below:

1. Overarching objective: Reduce illiteracy

Operating objectives

- Build coaching centers to provide study support to students from Primary to Higher Secondary (Grade I to XII) to improve their learning abilities as well as grades
- Coach senior students to impart education on basic mathematics and language to small poor children in their community
- Invite poor adults to school to take training on reading and writing skills after their working hours

2. Overarching objectives: Reduce Poverty

Operating objectives

- Provide vocational and skill training to the poor unemployed people to improve their possibility of getting jobs

- Collaborate with other organizations to employ students of DKCCDC upon their successful completion of the training programs
- Help to form Self Help Group (SHG) for women and give them loans to start small businesses
- Help to provide nutrition to the poor by providing meals once a day. Give free books and other stuff for learning.

3. Overarching objective: Improve Health care

Operating Objectives

- Build hospital with modern facilities and General and Specialist doctors
- Provide medical services free of cost or minimal charges to the poor including consultancy, medicines and diagnosis
- Advocate the need of health and hyegine and good living to the poor
- Operate mobile medical unit equipped with modern equipment and medicines and visit poor communities to render health care and those who cannot visit DKCCDC facility.
- Provide basic medical training such as, nursing so that number of medical practitioners can increase to provide health care services.

4.Improve Community living and environment protection

Plant trees, clean schools and roads etc. for better environmental protection and better living

4. EXTERNAL CONTEXT

Approach to External Context is as follows:

External contexts are Conditions, entities, events, and factors surrounding an organization that influence its activities and choices, and determine its opportunities and threats. It may also be called the external operating environment and includes the following

- Use PESTLE analysis
- Identify the external factors
- Each factor has positive and/or negative effects on the organization
- The focus is on the organization
- Use the SWOT analysis on each element
- Identify all the opportunities and threats

The External Context of DKCCDC

Political

DKCCDC is established under the Societies Registration Act of 1861 of Government of India.This Act is a tool for the Government to help establish non-Government and Non-profit organizations with the purpose of channeling aids to these organizations to help in projects related to removing illiteracy, better health care, flood relief etc.

Opportunities: It is easy to establish NGOs and so, the owner of DKCCDC has started his NGO with his own funding with a view to fulfill the purpose of DKCCDC.

Threat: There are many political parties vying for vote in Bolpur. it has become difficult for DKCCDC to remain neutral without supporting any political party.

Sometimes, opposite political parties creat problems in program implementation, if they don't receive votes in their favour.

Economic

The town of Bolpur is economically asymetric meaning that though there are many rich people, however, majority are poor. Therefore, Govt. aid is not always sufficient to help the cause of the poor.

Opportunities: Due to many underprivileged people in Bolpur and surrounding areas, there are clearly long term opportunities for serving these people according to DKCCDC's goals. Therefore, DKCCDC has made many capital expenditures and built school, hospital and other infra -structure.

Threat: DKCCDC is totally funded by its sole Owner/Founder. Therefore, the main threat is that how long he can continue to fund it. Secondly, even if he has funds, how he can ensure sustainability of DKCCDC after his death. He is now 60 years of age. Further, job opportunities in Bolpur are primarily in the agricultural sector. Therefore, students may find it difficult to find jobs even after being trained and may need to migrate to bigger towns for jobs.

Social

The citizens of Bolpur welcome the idea of NGOs operating in their communites as it also helps in improving the well being of the poor people in their community and bulds a healthy and prosperous image of the town.

Opportunities: Due to conducive environment in terms of support from the local community, it is easy to run a NGO in Bolpur.

Threats: Many poor and sick people line up for free health care which sometimes spread disease in the community. Further, due to lack of sanitary facilities, they defacate on the roads and make the roads dirty. Therefore, neighbours of DKCCDC often threaten with closing down DKCCDC.

Technological

Bolpur is well equipped with internet facilities and technology enabled learning for imparting education. However, medical facilities are not always modern and sometimes good doctors are not available.

Opportunities: DKCCDC is currently offering many IT courses and can expand into more web-based education. This will enable the underprivileged students access to internet and global exposure to possibilities in education, knowledge and jobs and will truly enable them to change their lives and empower them to be social change agents.

Threats: Offering proper health care to the underprivileged is a major problem due to insufficient healthcare facilities as well as inadequate advanced equipment.

Environmental

There is no environmental regulations that is in force in Bolpur.

Opportunities: There is a lot of opportunities for improving the environment and DKCCDC is involved in a lot of environmental work such as planting trees, cleaning roads, schools etc. These work are done by the students themselves under leadership as part of their learning to serve the society.

Threats: The main threats is of spread of disease due to high level of pollution and filth in the town due to poor environmental care and protection.

Legal

DKCCDC is legally constituted.

Opportunities: DKCCDC has employed its own security due to uncertain legal environment to protect its infrastructure. DKCCDC is also offering courses on security and private defense to bolster the safety of the citizen and enforcement of laws.

Threat: Due to uncertain legal environment and ineffective law enforcement, DKCCDC sustainability has become rather precarious.

5. DKCCDC STAKEHOLDER ENGAGEMENT

How Stakeholders were engaged:

- Staff and employees were asked about what is their understanding of environmental sustainability and how it can be improved. Therefore, teachers, administration staff, doctors and nurses were approached and they responded in writing
- From the patients and students, same questions were asked but their responses were recorded or noted down in paper.
- Staff and customers were told about the NGO sustainability targets
- Review the engagement plan at regular intervals i.e. weekly
- Check the progress against the goals on a fortnightly basis
- Identify specific metrics to measure the progress (such as reducing water usage, reducing electricity consumption, reducing waste generated etc.)
- Use the metrics to determine the effectiveness of the efforts.
- Internal Board: They are involved in strategizing and developing Mission of DKCCDC.
- Management and Employees: They operate DKCCDC and ensure quality and customer satisfaction
- Donor: Directly involved and is the founder, director and financier of DKCCDC
- Customers (Students & Patients): They are the raison d'taire for the organization as DKCCDC exists to serve them
- Suppliers: High level of involvement as they ensure supply of books and branded medicines at discount.
- Community members and neighbors: Their involvement is limited but their support is essential for the continuity of DKCCDC and to get "License to Operate". Therefore, fortnightly I take feedback from my community members about the improvements we are making.

TABLE – 1 below depicts the stakeholder engagement

TABLE 1 (Stakeholder Engagement)

Stakeholder Group	Involvement	Influence	Contributions	Method of Engagement/Frequency	Interests
Internal: Board	They are involved in strategizing and developing Mission of DKCCDC.	High level of influence as they determine the direction of DKCCDC.	Develops objectives of DKCCDC and monitors and controls its activities.	Meet quarterly	High level of interests as they determine and guide the strategic objectives of DKCCDC and ensure that DKCCDC is sustainable on a long term basis.
Management/ Employees	They operate DKCCDC and ensure quality and customer satisfaction	Involved in selection of suppliers and customers. Often affordable customers try to receive services of DKCCDC as it is free of cost and high quality. So, proper screening is done to ensure only truly needy avails the services of DKCCDC.	Participates in day to day operations of DKCCDC.	Direct contact with the customers and suppliers on Daily basis	High level of interest as they ensure DKCCDC operates according to the mission of DKCCDC and monitors and controls the activities of DKCCDC.
Volunteers	No direct involvement	None	Insignificant	Word of Mouth to Customers about DKCCDC	Insignificant
Donor	Directly	He is	He makes	He is directly	Have high

Stakeholder Group	Involvement	Influence	Contributions	Method of Engagement/Frequency	Interests
	involved and is the founder, director and financier of DKCCDC	directly involved in both strategizing and operations of the NGO	the full financial contributions for the operations of DKCCDC	involved all the time.	level of interest and drives DKCCDC and its goals.
External					
Customers (Students and Patients)	They are the raison d'taire for the organization as DKCCDC exists to serve them	Have high level of influence as their satisfaction of services provided by DKCCDC bring them to DKCCDC	Financial contribution is nil as they don't pay for the services. Main contributions is their opinion of the nature and quality of services provided	Survey on monthly basis Feedback after services provided on weekly and random basis Continuously and as required basis Quarterly parents/teachers meetings are held to learn about customer's needs and if services can be improved within available budget.	Have high level of interest in the service of DKCCDC as without it poor patients can not get medical treatment and poor students may not get education or skills for employment
Suppliers	High level of involvement as they ensure supply of books and branded medicines at discount.		High level of contributions as they ensure supply of medicines and books and other materials are delivered on time, at high quality and competitive price	Direct and via telephone and emails on daily and as required basis	They have high level of interests in success of DKCCDC as DKCCDC contributes to their businesses through purchasing from them.
Local Profitable Businesses (who are offering similar services at cost)	Limited involvement	Limited influence. However, they some times complain that due to free service provided	Has no contributions	There is no engagement	They have interests in a negative way as they do not want DKCCDC to succeed as it

Stakeholder Group	Involvement	Influence	Contributions	Method of Engagement/Frequency	Interests
		by DKCCDC, their business sometimes suffer. Therefore, they do not support DKCCDC services.			affects their businesses to some extent.
Community members and neighbors	Limited involvement	They have good level of involvement in terms of passively supporting the activities of DKCCDC and not openly complaining against it.	They have contributions in terms of supporting the activities and tolerating the activities of DKCCDC without any direct benefits to them.	Adhoc . DKCCDC members sometimes visit community members for communicating their gratitude for the support given by the community members for DKCCDC to continue their services in the neighborhood.	They have interests in terms of their areas not being dirtied by the customers and also noise created by the customers.
Competitors i.e. other NGOs	Limited involvement	Limited influence	There is no contribution but sometimes they refer customers where they don't offer similar services.	On adhoc basis as sometimes they do refer some potential customers to DKCCDC where they are not offering services that DKCCDC provides	No direct interests in DKCCDC
Media	Limited involvement	Limited influence	Sometimes they broadcast and air DKCCDC services through telivision and newspapers because of the high quality free services provided by DKCCDC as information	ADHOC basis and when media is called by DKCCDC to cover certain project activities that they are carrying out.	They don't have any direct interests in DKCCDC.

Stakeholder Group	Involvement	Influence	Contributions	Method of Engagement/Frequency	Interests
			and to motivate public for doing similar work.		
Local Government/Municipality	Limited involvement except to attend DKCCDC functions occasionally	They have a moderate influence for DKCCDC to continue its activities as they fully support it due to large number of poor customers being benefitted which improves the health and educational environment of the community for which the local government is responsible to large extent. As a result of this, neighbors and community members do not openly oppose DKCCDC activities.	There is no direct contribution apart from openly supporting DKCCDC activities	Half yearly when invited by DKCCDC to attend DKCCDC activities	They have a good level of interest in the success of DKCCDC as it projects a healthy and developed community.

6. SOCIAL LICENSE TO OPERATE

Approach to securing the organization's social license to operate

The social license to operate exists when the activities of an organization or a specific project has the ongoing approval within the local community and other stakeholders. In order to achieve the social license to operate, an organization needs to adopt the following approach:

- Understand the community's interest/disinterest in the operation of the organization

- Understand the community's convenience/inconvenience in the operation of the organization in the community

- Understand the legitimacy, credibility and trust components of the Social License to operate so that the risks attached to it can be addressed and mitigated considerably, if not completely eliminated.

- Allocate sufficient time for relationship building with the community

- Do something of interest to the community even if it is outside the main activities of the organization to get the community buy-in of the organization's activity i.e. to get SLO.

- Be aware of the techniques for capacity building at the local level

- Appreciate that the quality of the social license to operate is dynamic and responsible to changes in perceptions regarding the organization and its activities, decisions and projects. It is also susceptible to outside influences. The organization has to be diligent to work hard to maintain its social license to operate over time.

DKCCDC can ensure social license to operate by keeping the community members and local council/government happy so that they allow DKCCDC to operate. Though DKCCDC is a Govt. registered organization and licensed to operate, its customers create lot of filth, noise and even disease to some extent in the community as it treats very poor/unhygienic people as well as teaches and train poor children who creates lot noise and sometimes lack proper mannerisms. It may be emphasized that the community itself has no particular interest for DKCCDC to operate as it is a well to do community where DKCCDC operates as the Owner's house and facilities are located there

Meeting the community members and local council regularly, getting them engaged and developing good relationships, reducing their perception of risk, reducing conflict, address their concerns, advocating the need of DKCCDC activity to them on the importance of this social good and social work for overall community development are the best ways to maintain social license to operate.

7. ORGANIZATIONAL GOVERNANCE AND LEADERSHIP AND SUSTAINABILITY POLICY

Governance supports the organization's ability to meet its objectives in an uncertain world. Governance supports the organization's leadership as it seeks to address the organization's ever changing external context and seeks to continuously improve the internal context so the organization can meet its objectives. The governance provides the mandate and commitment for sustainability and makes sure that the provisions of the sustainability policy become part of what every member does every day. Organizational governance is the system by which an organization makes and implements decisions in pursuit of its overarching objectives. Organizational

governance is the most crucial factor in enabling an organization to take responsibility for the consequences of its decisions and activities and to integrate the three responsibilities (environment, social well-being and shared value) throughout the organization and its engagement with the internal and external stakeholders. One of the responsibilities of DKCCDC is to communicate with the external stakeholders about the approach the organization is using to manage its risk.

The sustainability policy serves as the foundation for the QEH&S management system and provides direction for the entire organization. The policy lets people in the organization know what's important to management. The policy should not be too specific or lengthy, but it should be meaningful to employees as well as customers, suppliers, contractors, and other stakeholders.

The content of the policy is up to the organization. However, DKCCDC must specifically address the following commitments:

- compliance with all relevant EH&S legal requirements, customer and product requirements, and any sector guidelines maintained by associations, and any other QEH&S commitments made by the organization
- prevention of workplace injuries
- continual improvement
- prevention of pollution
- other sustainability commitments, especially to stakeholder engagement.

Sustainability Policy of DKCCDC:

- **Vision:** DKCCDC should make sure to build a strong argument for the reasons why DKCCDC is needed. Accordingly the first rule for risk and sustainability is to have a clear vision,
- **Finance**: DKCCDC needs to guarantee a future for DKCCDC, it is crucial to develop a strong financial plan for long term sustainability of DKCCDC
- **Community Support**: DKCCDC needs long term support of the community to run its operations in the community successfully and peacefully.
- **Quality of Service**: Though DKCCDC offers free service to the underprivileged, they will not come to DKCCDC unless they perceive a benefit to come to DKCCDC. So, DKCCDC need to maintain high quality of service
- **Motivation**: As DKCCDC is primarily driven and financed by its owner/founder, he needs to ensure that his motivation and willingness to serve the underprivileged of the society is always intact.
- **Environmental, social and economic accountability: DKCCDC** needs to ensure that these areas are addressed properly for sustainable operation which will also benefit the community at large.

RISK POLICY AND RISK ASSESSMENT OF DKCCDC

From the perspective of the organization, all activities, products, and services have a sustainability footprint. This footprint creates impacts to the environment, society, and the economy. Each impact creates risks for the organization and its stakeholders. The organization can mitigate these risks through responsible operation that avoids creating impacts to the extent possible. (Pojasek, 2012).

Risk Assessment

FOOTPRINT ======➔ IMPACT ======➔RISK

Risk Policy of DKCCDC

The approach to risk assessment **is** about overall process of risk identification, risk analysis, and risk evaluation.

- DKCCDC needs to define the purpose of risk management and how it links to DKCCDC vision and mission.
- DKCCDC should identify and assess risks to its operations on a regular basis (i.e. quarterly) for smooth operation.
- DKCCDC should allocate appropriate resources for risk management i.e. insurance policies to protect its assets, appropriate staff who will be responsible for developing and implementing risk management policies i.e. accountabilities and responsibilities for managing risks.
- DKCCDC should reassess its risk management strategies/policies as new risks occur or where risk mitigation strategies are not working
- Establish and maintain rules governing appropriate risk behavior and practices. This should include how its patient and students, who are the main customers will behave to avoid risk to spreading disease to the community as well as acceptable level of noise.
- Be compliant with local regulations for environmental, safety and law enforcement.
- DKCCDC should have a risk monitoring and control procedure with KPIs for measuring risks to ensure risks are properly managed.

Major Risks of DKCCDC are

- Complaint by community members of increased traffic of patients and students which is creating nuisance related to noise and filth and consequently, risking losing the license to operate
- DKCCDC customers are not attracted to DKCCDC service and do not attend to/visit DKCCDC services
- What if the owner who funds DKCCDC loose his motivation to serve the society or can not arrange sufficient funds in future or dies

Table 2 DKCCDC Risk Assessment and Potential Mitigations for Major Risks

Risk Type	Risk Event	Risk Consequences (Opportunities/Threats)	Risk Controls	Effectiveness	Likelihood	Consequences	Priority for RiskMitigation	Risk Action
Community /Neighborhood	Complain by community members of increased traffic of patients and students	Threat. Risk of spread of disease by the patients as well as increased traffic and noise and filth generated by the customers i.e. patients and students Community may not allow continuity of services by DKCCDC ii)DKCCDC will not be able to fulfill its mission iii) Poor customers will loose the	i)Employ guards by DKCCDC to control noise and filth by controlling the customer behaviour . ii) Talking to customers on the need to behave appropriately including not spitting, littering or urinating openly. iii) Leaving the	Customers become more organized and create less nuisance. But unless such controls are strictly followed, the problem continues	8	Community will be more tolerant towards DKCCDC and better see the need for the services provided by DKCCDC.	2	DKCCDC needs to boost its relation-ship with community members thru advocacy on the need of DKCCDC operation so that there will be less resistance as well as improve

Risk Type	Risk Event	Risk Consequences (Opportunities/Threats)	Risk Controls	Effectiveness	Likelihood	Consequences	Priority for RiskMitigation	Risk Action
		benefits of free services and may not get health care and students will not get education or training	DKCCDC premise as soon as they are done with their business. iv) Employ some community members in DKCCDC which will create jobs in the community and reduce resistance to DKCCDC operations					the control on the customer as well as lecture them on the need for positive behaviour to ensure they cooperate and behave in a sustainable manner for DKCCDC
Customers	DKCCDC customers are not attracted to DKCCDC service and do not attend to/visit DKCCDC services	Opportunity More customers are likely to visit DKCCDC and more poor will be benefitted which is the core objective of DKCCDC. Threat If customers don't turn out and receive DKCCDC services this will ultimately lead to non-fulfillment of DKCCDC mission. Moreover, the poor will loose the benefit of free education and health care which is the degradation of society.	DKCCDC can consider implementing ISO 9000 and ISO 26000 quality control which will help them be more responsible to customers and better customer control i)DKCCDC works with communities, schools and other stakeholders such as schools and hospitals to send their patients/students to DKCCDC for better services ii) Advocate to the customers on the need of education for personal and social development and remove illiteracy.	Implementing of ISOs is likely give a boost to DKCCDC operations Effectiveness of this approach is high. However, the biggest challenge is to motivate the students to come to school and make them see the need for schooling in life	6 8	More customers are likely to visit DKCCDC and more poor will be benefitted which is the core objective of DKCCDC. More customers are likely to visit DKCCDC	3 2	DKCCDC should look for continuous improvement in services through customer survey and improvement of facilities DKCCDC should strongly advocate in community centers, schools and even through TV advertisement the need for an educated and skilled underprivileged workforce as well as a healthy citizen and welcome

Risk Type	Risk Event	Risk Consequences (Opportunities/Threats)	Risk Controls	Effectiveness	Likelihood	Consequences	Priority for RiskMitigation	Risk Action
			iii) continuously improve its services by offering higher quality and customer oriented services					the underprivileged to avail the free services offered by DKCCDC
Finance/Funding	What if the owner who funds DKCCDC loose his motivation to serve the society or can not arrange sufficient funds in future or dies	Threat DKCCDC operations will close and a large section of the underprivileged people will stop receiving the free services	DKCCDC owner is making a trust for continuity of services beyond himself. HE is also looking for association with other NGOs/Govt. agencies for funds in the event his funds run out.	This is an effective measure. However, the new trustee should have sufficient interest to run DKCCDC.	2	DKCCDC will continue for a long time to come.	1	DKCCDC owner should ensure continuity of DKCCDC through trust and other mechanism such as proper succession planning who can take over from him as well as Govt. support for financing, if needed.

Note: "Likelihood of Happening": 10 = Highest, 1 = lowest

"Priority": 1 = Highest, 10 = Lowest
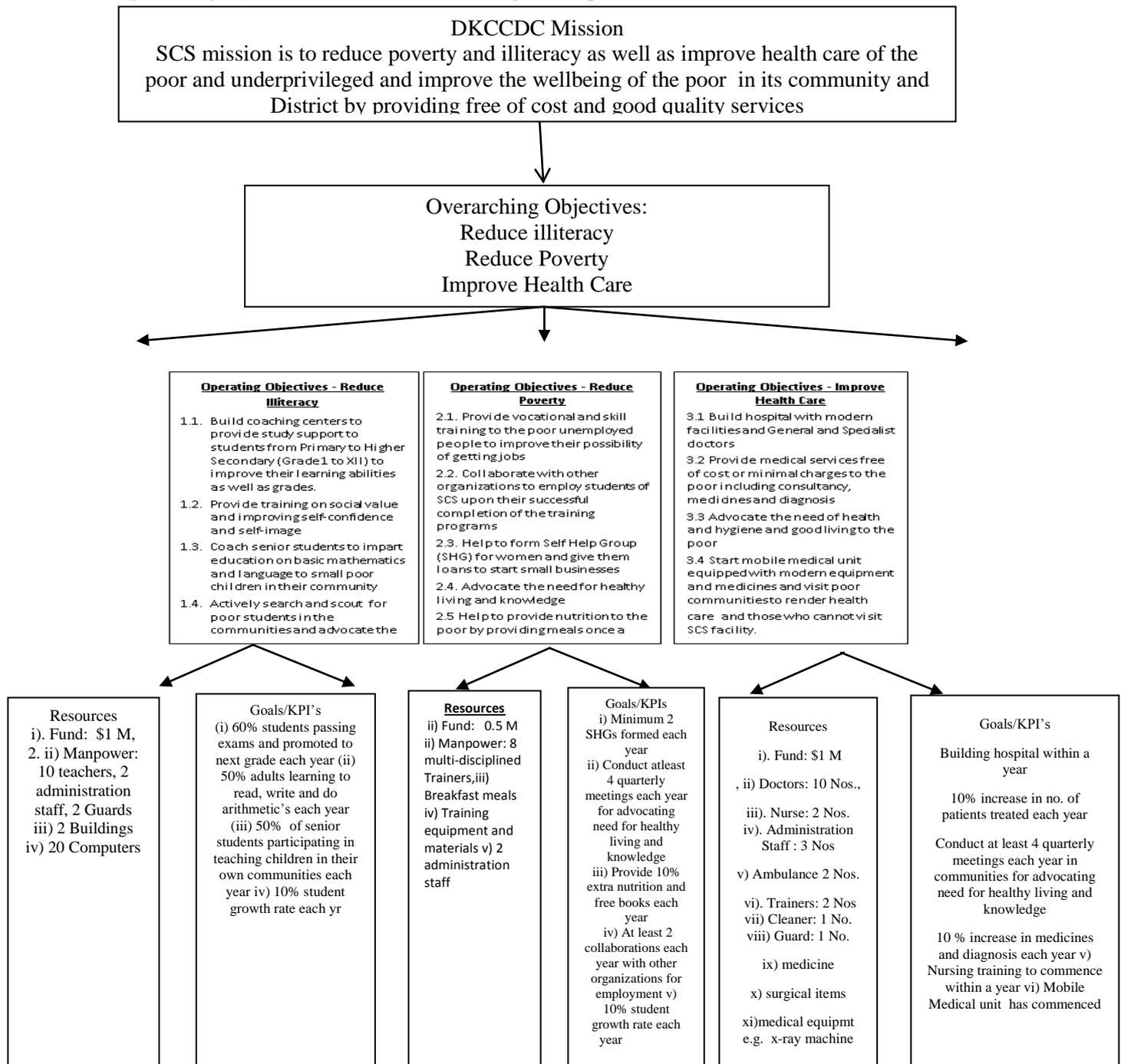
9. FINANCIAL SUSTAINABILITY

Financial sustainability refers to the ability to maintain financial capacity over time. Regardless of an organization's for-profit or nonprofit status, the challenges of establishing financial capacity and financial sustainability are central to organizational function. However, maintaining the ability to be financially agile over the long term may be especially important for nonprofits, given that many of them serve high-need communities that require consistent and continually available services. With this in mind, the goal of financial sustainability for nonprofits is to maintain or expand services within the organization while developing resilience to occasional economic shocks in the short term (e.g., short-term loss of program funds, monthly variability in donations). For most nonprofits, such as DKCCDC, a core challenge is balancing (1) the need to maintain financial sustainability and (2) the pursuit of organizational mission and maintenance of consistent and quality programming over time.

DKCCD's main financial support and resource is through philanthropic donations of its founder and director. The positive side of this is that DKCCDC is highly focused in achieving its mission as its objectives are not clouded due to donations

from others. However, the negative side is that this total dependence on one individual for its financial resource, makes DKCCDC vulnerable. Therefore, DKCCDC needs to strengthen its financial sustainability by arranging other sources of finance through other individual, institutional or governmental support though this may be at the risk of diluting DKCCDC's objectives and values. Therefore, the founder is now in the process of forming a trust which will enable the long term financial sustainability of DKCCDC and also trying for collaborations with like minded philanthropists for funding where the fund does not have been refunded which is called a Big Bettor strategy for funding (Foster, 2009).

10. RESOURCES, OPERATING SYSTEM AND PROCESSES

Operating System/Processes: Following is the process for DKCCDC

DKCCDC Mission
SCS mission is to reduce poverty and illiteracy as well as improve health care of the poor and underprivileged and improve the wellbeing of the poor in its community and District by providing free of cost and good quality services

Overarching Objectives:
Reduce illiteracy
Reduce Poverty
Improve Health Care

Operating Objectives - Reduce Illiteracy
1.1. Build coaching centers to provide study support to students from Primary to Higher Secondary (Grade1 to XII) to improve their learning abilities as well as grades.
1.2. Provide training on social value and improving self-confidence and self-image
1.3. Coach senior students to impart education on basic mathematics and language to small poor children in their community
1.4. Actively search and scout for poor students in the communities and advocate the

Operating Objectives - Reduce Poverty
2.1. Provide vocational and skill training to the poor unemployed people to improve their possibility of getting jobs
2.2. Collaborate with other organizations to employ students of SCS upon their successful completion of the training programs
2.3. Help to form Self Help Group (SHG) for women and give them loans to start small businesses
2.4. Advocate the need for healthy living and knowledge
2.5 Help to provide nutrition to the poor by providing meals once a

Operating Objectives - Improve Health Care
3.1 Build hospital with modern facilities and General and Specialist doctors
3.2 Provide medical services free of cost or minimal charges to the poor including consultancy, medicines and diagnosis
3.3 Advocate the need of health and hygiene and good living to the poor
3.4 Start mobile medical unit equipped with modern equipment and medicines and visit poor communities to render health care and those who cannot visit SCS facility.

Resources
i). Fund: $1 M,
2. ii) Manpower: 10 teachers, 2 administration staff, 2 Guards
iii) 2 Buildings
iv) 20 Computers

Goals/KPI's
(i) 60% students passing exams and promoted to next grade each year (ii) 50% adults learning to read, write and do arithmetic's each year (iii) 50% of senior students participating in teaching children in their own communities each year iv) 10% student growth rate each yr

Resources
ii) Fund: 0.5 M
ii) Manpower: 8 multi-disciplined Trainers,iii) Breakfast meals iv) Training equipment and materials v) 2 administration staff

Goals/KPIs
i) Minimum 2 SHGs formed each year
ii) Conduct atleast 4 quarterly meetings each year for advocating need for healthy living and knowledge
iii) Provide 10% extra nutrition and free books each year
iv) At least 2 collaborations each year with other organizations for employment v) 10% student growth rate each year

Resources
i). Fund: $1 M
, ii) Doctors: 10 Nos.,
iii). Nurse: 2 Nos.
iv). Administration Staff : 3 Nos
v) Ambulance 2 Nos.
vi). Trainers: 2 Nos
vii) Cleaner: 1 No.
viii) Guard: 1 No.
ix) medicine
x) surgical items
xi)medical equipmt e.g. x-ray machine

Goals/KPI's
Building hospital within a year
10% increase in no. of patients treated each year
Conduct at least 4 quarterly meetings each year in communities for advocating need for healthy living and knowledge
10 % increase in medicines and diagnosis each year v) Nursing training to commence within a year vi) Mobile Medical unit has commenced

The above process has proved itself to be highly effective as the Mission is linked to the goals through overarching objectives, operating objectives, resources and KPIs. The process is also efficient as the process activities and amount of resources required is optimized.

Responsibility and authority for this process: The Owner/Founder

For full implementation, Plan-Do-Check-Act (PDCA) should be applied to control and ensure that the Activities and goals are proceeding according to the Performance Measures and corrective measures are taken where it is not.

11. SUSTAINABILITY AND RESILIENCE

Approach is on helping meet its objectives in an uncertain (VUCA – Volatility, uncertainty, complexity and unambiguity) world and this is sustainability. Therefore, all operations at must consider VUCA which are potential risks to the operations.

For , resilience is a never- ending journey that uses a risk management focus an organization – its people, knowledge, technology, finance, sense making and decision making which will help to survive and thrive in turbulent times. By creating an organization that is adaptable, competitive, agile and robust, becomes able to anticipate, prepare for, respond and adapt to sudden and gradual change in its external environment (context), particularly with respect to community satisfaction and to obtain Social License to Operate. If we do not adapt to changes in the external context it will not meet their objectives. By creating an organization that is adaptable, competitive, agile and robust, we are creating its ability to anticipate, prepare for, respond and adapt to sudden and gradual change in its external environment (context).

12. SCOPING WITH VALUE CHAIN MODEL

Approach to the value chain is based on the process view of organizations, the idea of seeing a manufacturing (or service) organization as a system, made up of subsystems each with inputs, transformation processes and outputs. Inputs, transformation processes, and outputs involve the acquisition and consumption of resources - money, labour, materials, equipment, buildings, land, administration and management. How value chain activities are carried out determines costs and affects profits. These activities can be classified generally as either primary or support activities that all businesses must undertake in some form.

DKCCDC value chain fits well in to the above Porter's Model. However, I will make the following changes to the Porter; s model to fit DKCCDC situation:

- Under Primary Activities, instead of "Marketing & Sales", I will apply the term "Advocacy and Promotion" as DKCCDC being a nonprofit organization, is not involved in any marketing and sales. Further, DKCCDC conducts various levels of Advocacy and promotion of its services to its internal and external stakeholders.

- There is no outbound logistics for DKCCDC as such however, cured patients or educated children may be considered

- Under support activities, I will add "Innovation"

- Lead measures for support activities and lag measures for primary activities

- The concept of shared value within the context of DKCCDC may be less appropriate as DKCCDC is already in the business of serving the community. However, value can be shared with suppliers.

13. MONITORING AND MEASUREMENT

Approach to Monitoring

Monitoring involves the routine surveillance of actual performance against target so that there can be an accurate comparison with the expected or required performance.

DKCCDC needs to determine the method used for monitoring that is consistent with the measurement method selected. DKCCDC can use the Plan-Do-Check-Act model against target KPIs to monitor how well it is doing against the objectives and what actions to be taken where DKCCDC is not meeting the objectives.

Approach to Measurement

Primary use of monitoring and measurement is the linkage of the support elements at the top of the value chain with the operations at the bottom. Therefore, the value chain model is useful in scoping the monitoring and measurement program for DKCCDC.

Lead and Lag Measures are as follows:

Lead measures are about strategic or future whereas lag measures are of what happened in the past.

Lead and Lag Measures for DKCCDC are as follows:

The following lead and lag measures have been developed from the Value Chain above

Lead Measures

Hospital

i)New medicines introduced each quarter, ii)new medical services introduced every quarter, iii)extent of engagement of the community members, iv)amount of community support service carried out each year, v)new investment made each year on medical program and infrastructure vi) level of customer engagement in DKCCDC vii) Implementing lead measures on operations of DKCCDC as indicated

School/Training Center

i)No. of new courses and vocational training introduced each year ii) extent of engagement of the community members iii) amount of community support service carried out each year, iv)new investment made each year on school program and infrastructure, v) level of customer engagement, vi)promotional expenditure yearly to promote DKCCDC to its customers vi) innovating new ways to propagate education in poor areas of Bolpur e.g. snr. DKCCDC students are teaching basic mathematics, English and environment care to small needy students in their

neighborhood/community and making their community a literate one. Vi) No. of new advocacies carried out to retain good teachers at less than market rate salary

Lag Measures

Hospital

No.of patients treated per week, How soon patients return after treatment, weekly expenditure on medicines, customer satisfaction rating, staff expenditure monthly, diagnostic and laboratory expenditure per month, No. of staff leaving DKCCDC each year.

School/Training Center

Attendance record of students, Examination passing rates of students, No. of students getting jobs after vocational training, customer satisfaction rating, staff expenditure monthly, No. of staff leaving DKCCDC each year

14. TRANSPARENCY AND ACCOUNTABILITY

Approach to Transparency

In the practice of sustainability, DKCCDC is expected to be transparent in its decisions and activities that impact on the environment, society or the economy. As such, DKCCDC is expected to disclose in a clear, accurate, and complete manner, and to a reasonable and sufficient degree, the policies, decisions and activities for which it is responsible to its stakeholders, society, the economy and the environment. DKCCDC is currently doing this in an inconsistent manner without complying with any specific requirements.

Accountability

In the practice of sustainability, an organization is expected to be accountable for its impacts on the environment, society and the economy. It is well accepted that accountability involves an obligation of the organization to be answerable to legal authorities with regard to laws and regulations. However, the concept of accountability is expanded by sustainability to include a similar obligation for the overall impact of decisions and activities on the environment, society and the economy to those affected by its decisions and activities, as well as to society in general. DKCCDC does take accountability by engaging the neighbors in the community where it operates through satisfaction surveys and complying with their requirement in these three areas.

15. MATURITY OF THE SUSTAINABILITY PROGRAM

Conducting Self Assessment

Approach to self assessment should be comprehensive and systematic review of the DKCCDC activities and its sustainability performance in relation to its degree of maturity. The results of the monitoring and measurement should be input to the self-assessment.

Approach to Maturity Plot

Upon completion of self assessment, DKCCDC can decide how to characterize the five maturity levels as follows:

1. Beginner 2. Proactive 3. Flexible 4. Innovative 5. Sustainable or level 1 to 5 can be used.

These are used to identify the maturity level for each of the organization's individual structural levels/elements. For DKCCDC to start at level 1 and progress to

the higher maturity levels to maximum 5 is more appropriate as it addresses DKCCDC maturity aspects better.

Maturity Spider Matrix for DKCCDC

The maturity spider matrix of DKCCDC is as follows which visually reflects the maturity of various elements for sustainability
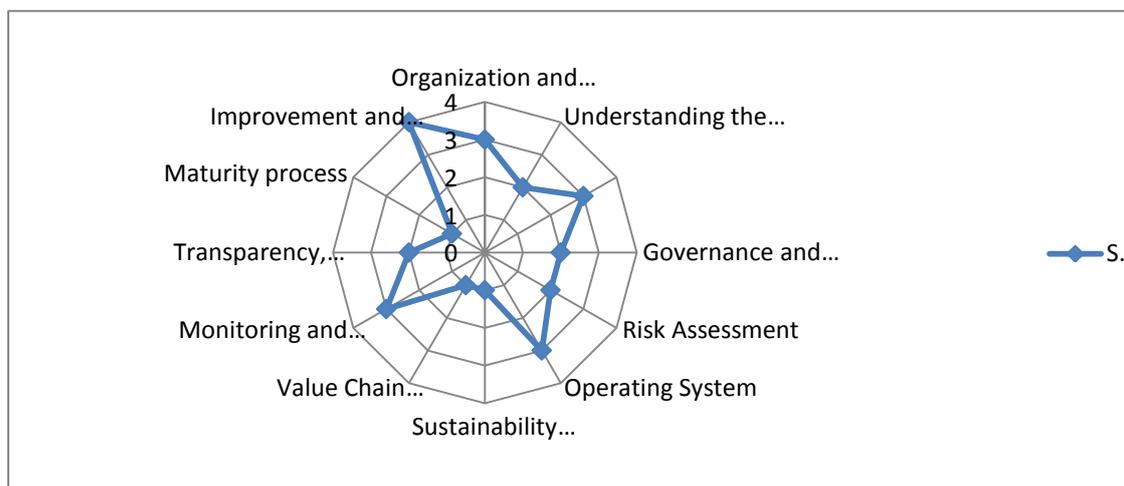
Organization and setting responsible objectives	3
Understanding the internal and external context	2
Engaging with stakeholders and maintaining the social license to operate	3
Governance and leadership – sustainability policy	2
Risk Assessment	2
Resources and Operating System	3
Sustainability/Financial	1
Value Chain Model to Scope Measurement	1
Monitoring and Measurement	3
Transparency and accountability	2
Maturity process	1
Improvement and Innovation	4

Note: 5 being the most matured whereas 1 being least matured

16. IMPROVEMENT AND INNOVATION

Continuous improvements and innovations are required to meet the external and internal threats of the organization as well as meeting mission of the organization. In various innovations have been made such as:

- Peer learning among students to help them learn faster as well as developing their personality
- Training senior students in the school to teach basic math, language and hyiegene to their neighbors where they live so that they can be change agents from early stage in their lives as well spreading education to illiterate population.

PART II

PART II discusses how the operation of an organization affects the three major sustainability areas of environmental, social and economic aspects and ways to calculate the environmental impacts and mitigate such effects. From the perspective of the organization, all activities, processes, products, and services have a sustainability Footprint (i.e. adverse impact). This footprint impacts the environment, society, and the economy. Each impact creates risks for the organization and its stakeholders. The organization can mitigate these risks through responsible operation that avoids creating adverse impacts to the maximum extent possible.

Sustainability's Three **major** Responsibilities areas are as follows (Pojasek, 2012):

Environmental Stewardship

- Reduce the use of all resources.
- Eliminate waste.
- Pay attention to the prevention of pollution.
- Respect the need for climate change mitigation and adaptation.
- Protect natural habitats and biodiversity.
- Consider each of these items throughout the value chain.

Social Well-Being

- Protect human rights.
- Ensure fair operating practices.
- Assess labor practices, including health and safety.
- Evaluate consumer issues associated with products and services.
- Optimize community involvement and awareness.
- Consider each of these items throughout the value chain.

Economic Prosperity

- Create top-line growth (brand).
- Ensure bottom-line growth (profits).
- Improve governance and maintain the organization's "license to operate."
- Contribute to community development.
- Consider each of these items throughout the value chain.

1. DKCCDC's Sustainability Impact are as follow

1.1 Economic Impact and benefits of Service

DKCCDC employs qualified but poor people without jobs. Therefore, it creates employment in the town. It also offers vocational training to poor unemployed

students which helps unemployed people to get jobs and helps in income generation for the town and surrounding communities which helps in poverty alleviation.

1.2 Social Impact and benefits of Service

Social impact of service is that more poor patients and students will get free medical care and education free of cost making my community literate and healthy who can also contribute to the welfare of the community. In the process, the community also becomes free from crime and social degradation.

1.3 Environmental Impact and benefits of Service

Environmental impact of service is that the community is becoming cleaner with more trees and greeneries as well as less polluted. For environmental impact, I have analyzed the current emissions at DKCCDC and how to reduce the environmental impact of DKCCDC as detailed below.

To help delineate direct and indirect emission sources, improve transparency, and provide utility for different types of organizations and different types of climate policies and business goals, three "scopes" (scope 1, scope 2, and scope 3) are defined for GHG accounting and reporting purposes.

Scope 1 emissions: Direct GHG emissions occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process equipment.

Scope 2 emissions: Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by a company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated.

Scope 3 emissions: Scope 3 is an optional reporting category that allows for the treatment of all other indirect emissions. Scope 3 emissions are a consequence of the activities of the company, but occur from sources not owned or controlled by the company. Some examples of scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; and use of products and services

2. With reference to 1.3 above, A description of DKCCDC's emissions Scope 1, 2 and 3 are as follows

- Direct Emissions: Scope 1: Petrol for back-up generators, diesel for Medical Mobile Unit. Direct emissions from school buildings and equipment including furniture as well as from goods and services consumed in the school such as books, computers, cleaning materials, electrical wirings, waste generated etc.
- Indirect Emissions: Scope 2: Electricity
- Indirect Emissions: Scope 3:Use of software, employee commuting, Projector, Supply chain activities of companies producing goods and services procured by schools

The major Green House Gas Emissions are: Carbon Di Oxide(CO_2), Methane (CH_4) and Nitrogen Oxides (N_2O). Carbon dioxide equivalent is a measure used to compare the emissions from various greenhouse gases based upon their global warming potential. For example, the global warming potential for methane over 100

years is 25. This means that emissions of one million metric tons of methane is equivalent to emissions of 25 million metric tons of carbon dioxide.

3. A calculation of emissions for the school and training center (Scope 1 and 2 and Scope 3 emissions source

Ans: The calculation of major emissions for Scope 1, Scope 2 and Scope 3 are as follows:

TABLE 3

Major Emission Areas in School	Quantity/Month Used	Emission Factor(CO2)	Emission Factor (CH4)	Emission Factor (N2O)
Petrol/Gasoline (Scope 3)	50 litres (470 Kwh)	0.269 kg/kwh	0.00024kg/kwh	.0000051 kg/kwh
Diesel (Scope 1)	8 litre (88.8 Kwh)	0.276 kg/kwh	0.000012kg/kwh	.000036kg/kwh
Kerosene (Scope 2)	20 litre (196.42 kwh)	0.25884 kg/kwh	.0000036 kg/kwh	.000000216 kg/kwh
Waste* (Scope 2)	100 Kg	0.8421* kgCO2e/kg	-	-
Electricity (Scope 2)	200 Kwh	0.926 kg/kwh	0.0000068 kg/kwh	0.0000087kg/kwh

*Waste: Due to mixed nature of Waste, there is no specific emission factors for waste for India except for CO2equivalent as indicated above.

GWP for CO2 = 1, GWP for CH4=25 and GWP for N2O = 298

TABLE 4

	Quantity Per month (i)	CO2 Total Emission = Emission factor (Kg CO2/KWh) x Quantity(kwh) (ii)	CH4 Total Emission = Emission Factor (kG CH4/kwh) x Quantity(kwh) (iii)	N2O Total Emission = Emission Factor (kG N2O/kWh) x Quantity (kwh) (iv)	CO2e Kg (GWP = 1) x (ii)	CO2e(CH4) (GWP = 25)x (iii)	CO2e(N2O) (GWP = 298) x (iv)	Total CO2e (Kg) per month
Scope – 3 Petrol/gas-oline for employee commuting (For motor cycle)	50 litre = 470 Kwh	0.269 kg/kwh x470 kwh = 126.43 kg	0.00024 kg/kwh x 470 kwh =0.115 kg	.0000051 kg/kwhx 470= 0.0024 kg	126.43 kg	0.115 kgx25= 2.875 kg	0.0024x 298 = 0.7152 kg	130.02 kg
Scope - 1 Diesel (MotorTra-nsport)	8 litre = 88.8 Kwh	0.276 kg/kwh x 88.8 kwh =24.50 kg	.000012 kg/kwhx 88.8 kwh = .0010 kg	.000036kg/kwhx88.8kwh=.003199 kg	24.5 kg	.0010x25=.025 kg	.003199 x298= 0.95 kg	25.47 kg
Scope - 1 Kerosene (for domestic power use i.e. diesel generator)	20 litre = 196.42 kwh	0.25884 kg/kwh x196.42 kwh= 50.88 kg	.0000036 kg/kwhx 196.42 kwh=.00 0070	.0000002 16 kg/kwhx 196.42 kwh=.00 00424	50.88 x 1= 50.88= 50.88	.00070x 25 = .0175	.000424 x298=. 1263	51.02 Kg

Scope-1 Waste	100 Kg	-	-	-	0.8421 kgCO2 e/kg x 100= 84.2 kg	-	-	84.2kg
Scope - 2 Electricity	200 KWh	0.926kg/k wh x 200 kwh = 185.2 kg	0.00000 68 kg/kwhx 200 kwh= .00136 kg	0.00000 87kg/kw hx200 kwh=.00 174 kg	185.2x1 = 185.2 kg	.001366 x25=.0 34 kg	.00174x 298=0. 518 kg	185.752 Kg
Total CO2e emissions (Kg) per month for Scope 1+Scope2+Sc ope3								476.46 Kg/Mont h

Total emission (Kg) = Quantity of fuel x emission factor x Global Warming Potential (GWP). For CH4 and N2O, total emissions for these elements were multiplied by the Global Warming Potential (GWP) to come to CO2equivalent (CO2e) values for comparison of all emissions on equal basis.

4. A detailed description of the firm's largest sources of emissions are, and the best way they could reduce them.

Ans: Based on the TABLE-4 above, it is clear that the largest source of emission of DKCCDC is electricity Scope 2) at 85.75 Kg CO2e (42% of total emission) per month followed by employee commuting (Scope 3) at 130.02 Kg CO2e (30%) per month.

Therefore, the emission reduction strategies are prioritized based on the source that is emitting the largest amount of CO2e in descending order.

The reduction strategy can be based on the following approach:

- Behavioral Change
- Conservation
- Efficiency
- Process Change
- New Technology

Reduction in electricity use (Scope 2) in the School

The above approach can be used to reduce electricity use as follows:

I) Behavioral Change

- explaining the need for energy savings and efficiency
- top down mandate for less electricity use
- bottom up approach leading to feeling of ownership with support from management
- appointing energy 'champions', who are responsible for spotting energy waste and promoting energy efficiency

- seeking input to the energy plan and rewarding feedback
- celebrating achievements
- keeping people informed about new ideas
- making it fun by having activities or competitions around saving energy.
- Understand energy bill and how much energy is used in school for monitoring and control of energy
- Use renewable energy as much as possible
- Share information with people and staff

II) Conservation

- Educate the staff and children to turn off energy-using appliances and lights when not in use
- Draught strip windows and doors
- Reducing consumption of electricity
- Reusable serving ware
- Not using air conditioning
- Use less hot water

III) Efficiency

- Use energy efficient lighting such as LEDs
- Manage ICT (Information and Communications Technology) loads
- Use building systems properly to save energy
- Efficiency upgrade for equipment
- Replace regular light bulbs with compact florescent light (CFL) bulbs.

III) Process Change: Demand management by having more classes in the day light where electricity will not be required. Most electricity demand is at night.

IV) New technology:

- Install smart metering
- Use renewable energy as much as possible such as wind and solar
- Upgrading heating control
- Increasing insulation:

B. Reduction Strategy for Petrol/gasoline use for Employee Commuting (Scope 3)

- Encourage cycling by providing secure bike storage and lockers.
- Set up a 'walking bus' or an alternative scheme
- Incorporate sustainable travel activities across the curriculum
- Hold special promotions for active travel and exercise opportunity
- Arrange training for walkers and cyclists on independent travel
- Spread the message to pupils and parents
- Liaise with feeder schools to agree guidance for new pupils and employees on sustainable travel
- Find ways to involve pupils obliged to travel by car
- Work to improve bus provision and behavior on school transport

- Work with local authority to identify safer routes and possible highway improvements
- Reduce emissions from school business journeys
- Telework and alternative work schedules
- Driving an alternative fueled or hybrid vehicle
- Participating in rideshare, carpool or vanpool programs
- Using public transit such as buses, Metro, and commuter rail
- Biking or walking to work if possible.

It is expected that there can be 20% reduction in CO2e as a result of approaching the above strategies. However, the main constraint is extra time required for travelling when using alternative transport such as cycling or pooling with others or public transport instead of using their own motorcycles (main means of transport).

C) Reduction Strategy for Waste (Scope 1)

- Work with students to carry out a school waste audit to find out how much waste is produced, then classify the types of different waste and identify waste 'hot spots' within the school.
- Develop an action plan on how to tackle waste in the school. Track the progress by undertaking regular measuring and monitoring.

Waste reduction can be achieved through the following schemes and processes:

Reuse − (i) Encourage pupils to use reusable bottles and flasks for drinks. This can easily be done by installing water fountains around the school and encouraging pupils to drink tap water.

ii) Printer cartridges: get the old cartridges refilled and use them again (it may take 1000 years for cartridges to decompose in landfill, and it is often cheaper to refill them than buy new.

iii)Stationary: reuse old envelopes for internal mail or by sticking a new label over the previous address. The same can be done for old paper or plastic folders.

iv) Furniture: repair or repaint items of furniture to prolong their life.

Recycle – recycling old products into new ones saves raw materials and energy

Recycling helps save energy and tackles climate change, and can save your school money on rubbish collections. The types of materials that can be recycled and the cost savings to the school will depend on the local authority or other waste services provider.

- Find out from the waste services provider what recycling services they offer.

. The services offered may either be co-mingled (all items in one container) or collected in separate streams.

- It can be started with the biggest or most popular streams like paper, cardboard, cans, glass containers, plastics bottles and cartons. This can also start with schemes for smaller, more specialized streams like ink cartridges, light bulbs, batteries and CDs.
- Make it easy to recycle by placing recycling bins in sensible areas, such as next to printers and photocopiers, classrooms, and in the staff room. These areas can be identified from a waste audit.

- Use clear posters and signs to encourage everyone to use recycling bins, and use them correctly, so this becomes second nature

Swap or give it away

We can donate them to a local charity shop, advertise on Freecycle, or exchange them in 'swap shops' or 'give and take' days.

- Set up a scheme to collect old ink cartridges and mobile phones from the local community –some charities are keen to accept these to help raise funds
- Make it easy for pupils and their families to swap, donate and exchange second hand uniforms.
- Contact local charity shops or Freecycle to find a new home for other unwanted items such as furniture, books etc.
- Old books and computers can be sent abroad though donation schemes, but check there are procedures in place for maintaining the equipment and disposing of it correctly at end of life

Reduce paper and card waste

Paper and card contributes around one third of all waste in schools. It is easy to make more efficient use of paper and card, and to recycle it when you're done. It saves money too.

- Put scrap paper trays in each classroom, and in the reception office, the copier room and other places where lots of paper is generated.
- Make double-sided printing and photocopying the default, or add clear instructions next to printers on how this can be done manually. If need be run short training sessions for staff so this approach becomes routine.
- Keep boxes from deliveries if they are suitable for use in storage.
- When recycling cardboard boxes to make sure to flatten them first so they do not occupy a lot of space in the recycling bins and/or feed cardboard into your compost bins.

D) Reduction Strategies for Kerosene (Scope 1)

Kerosene is used primarily to run the Diesel Generator for generating electricity when there is no electrical power available in school and this is unavoidable. This is a small duration run during emergency with small emission and reduction strategy is not required for it.

E. Reduction Strategy for Diesel (Scope 1)

Diesel is used to run the Mobile Medical Unit to provide health care services to old and disabled patients in villages who can not visit my hospital. There is no alternative to it and hence reduction strategies are not required. However, we are taking most optimum routes to villages to reduce diesel consumption.

5. A suggested GHG reduction goal that DKCCDC can reach

GHG emissions goals can be set not only in terms of emissions reductions targets and dates for achieving them but also in terms of the categories of GHG emissions to be reduced. Therefore, emissions reduction goals can be established separately for Scope 1, 2, and 3 categories of GHG emissions.

Based on the above, my suggested GHG reduction goal is as follows

Reduction goals can be on short term (Monthly), Medium terms (6 months) and on long term basis (1 year).

Scope 2: 10% reduction in GHG emissions can be achieved in 1 month compared to TABLE-3 due to reduced electricity uses through the strategies described above. 15% in 6 months and 20% in one year.

Scope 3: 5% reduction in GHG emissions can be achieved in 1 month compared to TABLE-3 due to reduced use of Petrol/gasoline for employee commuting. Staff can be persuaded to use renewable or alternative transport such as cycling or walking.10 % in 6 months and 15% in 1 year. This is because habit takes time to take effect.

Scope 1: 5% reduction in GHG emissions in 1 month can be achieved compared to TABLE-3 due to reduced use of kerosene and diesel as well as reduced waste generation through re-use and recycling of waste as well as buying stuff with less packaging. Further, 20% waste can be reduced in 6 months and it is expected that up to 40% reduction in waste can be achieved in 1 year as this is very much within the control of DKCCDC, primarily through behavioural change and process change, as discussed above.

The above proposed reduction is a bit conservative considering that due to their low socio- economic background the children in my school and staff are less likely to adopt and adapt to this new requirement of GHG reduction.

6. Energy Audit and Reporting Requirements

Annual energy audits would provide the relevant information from which students, faculty, and staff can make informed choices and prioritize projects that will improve energy efficiency.

7. Supply Chain

Emissions from Supply chain activities of companies producing goods and services procured by schools, Scope-3 emissions, were not immediately available as suppliers are not keeping record of emissions in India.

Linking action to reduce emissions with the school curriculum

Linking what is taught in the classroom to carbon reduction activity underway in the wider school environment can build momentum for change through pupil leadership and involvement.

8. Making Sustainable purchasing in schools

- Develop procurement expertise – nominate and train someone to coordinate everything centrally
- Plan ahead: identify what is needed early to get the best deal
- Buy energy efficient and sustainable consumer goods
- Don't buy unless needed – does anyone have a spare?
- Look for alternatives to branded products
- Think sustainably about the paper school buys and uses
- Buy food locally and seasonally
- Improve buying power and work collaboratively

- Share best practice – if a good sustainable deal is made let other schools know about it is doing.
- Work with suppliers for less packaging for the goods they sell.

9. Hand printing

Many companies are already changing the world for the better—by greening their products, launching programs for sustainability in their communities, or improving the lives of employees and their families. Each of these initiatives is a positive business impact—what is called a "handprint." We compare a company's handprint to its footprint (which is an adverse impact of an organization's operations), and when its handprint is larger than its footprint, the company becomes a *Net Positive Enterprise*.

Hand printing at DKCCDC is two pronged namely Social and Environmental as follows

Social Hand printing

I find it difficult to spread education beyond those who come to my school to study in other words, I am not able to touch those who are not coming to my school. Therefore, I am now training higher grade students in my school e.g. grade X, XI and XII on teaching techniques and inculcating social values in them and the need for social service in their lives. Therefore, they have now started teaching primary students in their villages on language and mathematics and hygiene and making their villages free from illiteracy. This has been very successful as higher grade students are taking responsibility for their communities through teaching from an early age and getting self confidence and have become change agents from a very early stage in their lives and in the process they are creating social capital. For me, this has been a very good social innovation and a prime example of social hand printing. These students are also actively trying to enroll more students in their communities in my school so that more poor kids can be educated and take advantage of our free education.

Environmental Hand printing

Students and staff in my NGO have started planting trees in their communities that can reduce the amount of carbon dioxide in the air, reduce soil erosion and improve the environment collectively – slowly and surely.

B10.Sustainability Impact Assessments and Performance Measures/KPIs

10.1The method that I have used to evaluate the environmental sustainability impact of my NGO (i.e. DKCCDC) is that I have measured the total emissions generated by the NGO in CO_2 equivalent (TABLE-3 and TABLE -4). Regarding, social and economic sustainability, logging and recording of increased number of patients and students are done on daily and monthly basis.

10.2 Key Performance Indicators (KPIs) for measurement

- Energy used such as Electricity (KWH/Day) and renewable energy used
- Water (liter per day) used and water pollution
- Medical, toxic and general waste (Kg. /day) generated
- Diesel (liter/day)

- No. of trees planted
- Amount of garbage dumped on the ground (Kg/day)
- No. of New patients and students being served
- Type and quantity of green house gas Emissions released in the air

11. Conclusion

Based on the sustainability tools discussed above, it is clear that an organization can become sustainable operationally as well as in terms of its impacts in the society in which it operates. An organization can self monitor its maturity level for sustainability as well as check how to adjust the environmental, social and economic impact of its operations with the best interest of its stakeholders. Ultimately, the article addressed the problem of how to make an organization sustainable in terms of reaching its goals as well as meeting operational sustainability requirements.

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