

Framework for Sustainability Education: Trends and Long term Viability

Srinivas Nowduri Ph.D.

*Department of Mathematics and Computer Science, University of Massachusetts, 100 Morrissett boulevard,
Boston MA 02125, USA*

Abstract: *The significance and importance of education for sustainability (EFS), as an improved class room curriculum, in academic institutions is outlined. Categorized the necessary levels at which sustainability can be taught as a learning curve in academic institutions. The constraints and issues of sustainability, in this consideration are explored from two perspectives viz., Social awareness activity and Precautionary measure for future generation. Technological support for this noble activity and how sustainability supersedes technology is discussed. Constraints for fully implementing sustainability at high school level are addressed. A framework for sustainability education process is designed to wake up the next generation, get ready to address the upcoming environmental issues. Finally some suggestions and advices are made for rural and urban area educational institutions, in promoting this sustainability education.*

I. Introduction

Ever since the human evolution, “education” has been an important component for any society and supports security for any nation in this world. It is expected that education brings in character, culture and behavior to the existing societies and communities. Government and parent community has been the two sides of this education coin. They act as two broad unconditional agencies that invariably support this seminal activity. In recent decade, to flourish, progress and establish this education system, every government is taking certain mandatory measures to eradicate illiteracy and poverty. This education systems (ES) have been broadly divide into three categories: Traditional (TES), Industrial (IES) and Information Age (IAS). There are some basic facts commonly share by these three different education systems, such as ethics along with certain principles and practices. At the same time, these tree types of education systems also diversify as they progress further and while applying to different levels of education, such as high school, community college, under graduation, graduation and above. A country’s adaptation of a particular type of ES, is highly subject to several factors (not limited to) viz., (a) the psychological mind set of parent community (b) the psychology of the existing student generation (c) existing societal environment and (d) prevailing market trends and (e) government rules and regulations.

The three broad category of educational systems are basically stems from different time periods, peoples mind set and then-existing circumstances. Initially this research work describes the three education systems and before introducing the idea of sustainability education systems (SES).

Traditional education system (TES) stresses more on basic knowledge of the society, its environment and market needs. This is used to be social awareness activity for human, clearly demarking the social needs in terms of certain patterns and trends. This clearly demands lot of theoretical concepts and basics, without solid proofs, which demands memorization coupled with rigorous examination patters. This systems was open for access only to some selected categories of the society. It is strongly suggested that this needs to be started and completed during a child’s age of 5+ to 25+ years. This system can be subdivided into many categories such as Schooling, Graduation, Master and Doctorate types.

An industrial education system (IES) is more of a non-traditional type, where the primary importance is towards industrial applications and needs prevailing in that community or society. In this system, the impact of the parent community, coupled with their financial status, is slightly influence their children’s career. Unlike TES, this does not required any formal education like Graduation or Masters, instead it insists on certain skill set like carpentry, wood crafting and painting. This IES directly addresses industrial related problems, applications and issues, narrow downing the career path towards a manufacturing and maintenance of specific industrial sector needs. This system is more successful due to its assurance of employment after the completion of a specific skill set course.

An information age education systems (IAS) is totally dedicated with huge bulk of concepts, principles and practices, which giving a helping hand to above two education systems. It also focus on the social, economic and environment sectors, their impact on growing economy. Thus the “sustainability” concept has slowly became a vital component of this modern education system. With the overreaction through industrial

gases and danger to ozone layer, the world has witnessed the immediate importance of sustainability and its education to the young generation.

The rapid industrialization and competitive market trends, make “sustainability” concept a rich source of importance for creating, running and maintaining any kind of business, for its long time viability. The term sustainability has been defined in several ways, by several authors in many ways. Sustainability has been demarked as an “exercise” and a “process”, where the “exercise” refers to theoretical base that one needs to change, whereas the “process” refers to a system like education system. Therefore this can be used as tool in our day to day lives in achieving sustainability. There by the education “about sustainable” development and “for sustainable” development can be differentiated as shown below:

Education about Sustainable Development	Education for Sustainable Development
This is more of a general and theoretical framework for a specific application	This is of a long term viable practical concept, impacting youth.
This is more of a precautionary measure	This is a procedural approach for achieving sustainability
This is a basically a comparative study	This is procedure intertwined with current technological trends
This is an aggregation of recently occurred natural developments.	This is conglomeration of knowledge, skills, attitudes and values.

This work refers to the second aspects viz., the education for sustainable development. It basically focus its attention on how this process impacts on the current educational system, call it as “sustainable education system (SES)”. Education for sustainability has gained its movement in recent years, for the two broad primitive reasons:

1. As an evolutionary tool for next generation and
2. As a helpful aid in shaping the modern communities.

Keeping these viewpoints at its core concept, this work focus attention towards defining a proper education process, for achieving sustainability. Most of the times, to shape a sustainable future for a nation, one needs to develop knowledge, skills, attitude and values. These ingredients are believed to be derived from SEP. This SEP is supposed to address (through teaching and learning) certain key sustainable issues such as: Climate change, disaster risk reduction, biodiversity, poverty reduction, etc. It is also expected that SEP should motivate and empower learners to change their behavior and take necessary actions need for sustainable development. Therefore SEP is altogether a shift to the traditional education process. Before we go into those details, first have a look at how education intuitions and their influence on social and economic environments.

II. Academic Institutions and their Impact on Socio-Economic Environment

An academic institution, is expected to enrich with cluster of cultural, moral and behavioral values, to its society. It basically get its success and recognition due to several factors such as curriculum, infrastructure, quality of its faculty, available facilities and local environment. Past literature has given enough explanation for several factors that make an academic institution successful [3][5]. In recent era, the climatic, environmental and social changes has thrown some challenges to eradicate certain bad industrial practices. This way most of the business organizations wake up with the sustainability call and quickly start modifying their business processes in-tune with rapidly changing socio, economic and environmental changes. At the same time the academic institutions start incorporating, socio-economic changes to their curricula to face tomorrow’s environmental challenges. One such seminal attempt is precisely the “sustainability education”.

In this modern era, an academic institution is clearly a rich source of asset to its existing environment. It primarily throw its light from different perspectives (not limited to) in the following number of ways:

- Bringing societal awareness about the climatic changes
- Eradicating the poverty in the society
- Boosting the self-employment aspects
- Bringing people awareness towards handling health hazard situations

Education being a born right for everyone, influencing directly their existing social community. This is more clearly visible in rural communities, where employment opportunities are less, when compared to urban societies. These academic institutions are basically stand up, to shape few ethical and principle values needed for the society and help developing individuals to grow up those values. Thus, in most of the developed as well as under developed nations, the academic institutions are given a free hand and encouraged by the government along with several private and public sector organizations.

At the same time, most societal needs deal with good value to the society. The basic role of any business enterprises is to identify something of good value and attempt to satisfy such needs profitably in a way that engender sustainable relationship that is anchored on ethical practices. Therefore the academic institutions

first try to teach several ethical practices and shape individuals to become morally accountable and responsible for their nation's socio-economic environment and growth. Further academic institutions reshapes its individuals to be more ethical entrepreneurs and self-employers.

Second, every individual in the society, being a consumer has some expectations from its business enterprises. This way, a society being a conglomeration of many consumers, there is always a one to one mapping between societal expectations and existing enterprises. In recent decade, this encouragement is directly or indirectly reflecting the environment, due to its damage caused by greenhouse gases and environmental pollution.

Therefore "sustainability education" has quickly gained its momentum in the academic world reflecting its measure in protecting and preserving the environment. This is clearly visible in most of the developing and under developing nations around the world. In this research work, the "sustainability education" has been viewed from two different perspectives viz., social awareness activity and a precautionary measure

2.1 Sustainability Education as a Social Awareness Activity

The main idea behind the word "sustainability" is to create an environmental friendly nature with reference to different activities. These set of activities that needs to be addressed as an initial process. Later develop the set of environmental factorsthat impact this process. The next immediate step is to look for scope for inserting these factors in to the current education systems, revolutionizing the sustainability education process. The sustainability education, is obviously a process of throwing these environmental factors in a systematic and evolutionary manner resulting, sustainability education system (SES). This SES needs to be taught as a social awareness activity, at different levels like high school, college and university level. This awareness activity is supposed to prepare young generation to coop-up with the environmental changes. For example, within the context of academic institution, usage of solar energy instead of others, use of re-usable papers and materials, and usage of bio gas instead of petroleum and diesel. The following are some of the advantages of SES towards social awareness activity:

- It generates a concept formation towards sustainability
- It stops many bad practices of business processes
- It creates more strategic thinking towards business improvements
- It also bring awareness towards reusability of processes and products
- It enhances strategic marketing practices
- In initiation in the next generation,

When it comes to implementation of SEP, it is more of a social contextual process. The past literature indicates that there are five prominent important components plays a vital role for this process, as described below [8][9] in figure 01. In this context one thing is quite clear that these activities are of continuous by default.

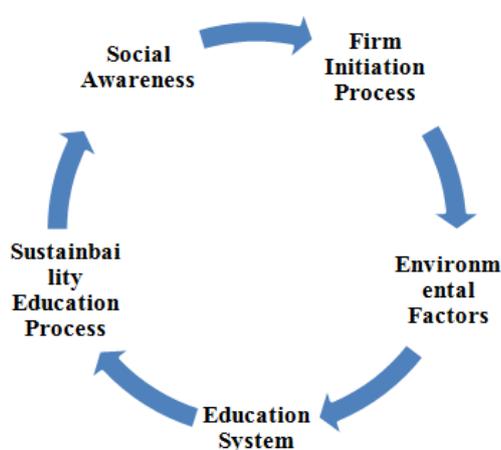


Figure 01: Sustainability Education Process (SEP) components in a social context.

1. Firm Initiation Process

This is a crucial step of initiating process bringing awareness in people and society. This can be easily made possible due to drastically improved social media. At the same time, any firm wise, initiation has its own dark spot due to certain group of employees and employee unions. Over all any firms sustainability initiation process lies within the management hand and its associated legal obligations.

2. Environmental Factors

Literature speaks of these factors many in nature, broadly speaking these can be categorized into two categories viz., Mandatory and Optional. In general, the set of firm's environmental factors varies according to its business nature. For example, the firms like banking and insurance sectors, solely depends on the socio and economic environmental factors. Whereas firms like agricultural and food processing depends on monsoon and humidity. Thus environmental factors are not uniform for all firms. It is the firm's individual decision to decide their environmental factors and provide sustainability education to their workforce.

3. Education Systems

As discussed earlier, the current education systems needs to be revamped into different sectors, exposing the young generation to different academic tracks. In order to make this education system complete, correct and consistent, it needs sustainability to be incorporated in to its main core stream. In this technological era, the education system is inter-twinned with the sustainability issues such as use of solar energy, recyclable material, eco-friendly products, etc. Thus the main emphasis is slightly fine-tuned towards, smooth continuation of businesses and smooth shift to next generation.

4. Sustainability Education Process

Sustainability education process is not a new phenomenon to mankind, but in recent days, it gained its momentum, due to its urgency and long term significance. This education process is not entirely new, but a bidirectional approach viz., using the sustainability factors and social awareness activity. This is not precisely a fixed step by step process, but overall it captures the use of natural resources, to keep eco-friendly relationship. This work only presets a frame-work for this process, without much insight into its implementation aspects.

5. Social Awareness

This should be an ongoing activity vital for any society to grow into the future. Education has been the main and important source in this direction, for the past several centuries. As a strategic vision, the same idea has been extended by making use of natural sources and eco-friendly products. Therefore, in this technological era, the social awareness has been bifurcated towards, extending the vision of businesses more like a social awareness activity. Education has been molded not merely towards a particular degree or diploma but towards a social awareness activity.

In general, education affects sustainability from three different perspectives [10][8] viz., Implementation, Decision making and Quality of life. Implementation is basically for the purpose of measuring the national literacy rate, which determine the country's necessity for an international trade. Exploitation of natural resources and need for buy back goods from international markets. Undoubtedly the educated work force play a vital role in these situations, for their long term viability. There are several computer based education systems come in handy, such as online education system, and distance learning systems. Decision making is also vital aspect of sustainability. The impact of good decision making will results in social, economic and environmental well-being. Shaping skilled labor, from general public is clearly result of an intelligent decision making. Further, adopting group coordination and communication skills, throw some more light on this issue. Since centuries onwards education has been a good source for quality of life, for several reasons beyond the scope of this work. The overall impact of it can be witnessed from two broad schools of thought as narrated below:

- A. **Decision making capability:** Decision making, whether it is for personal or professional matters, first it needs to be unbiased. It has been a long tradition that, a good society is the one which is capable of taking good community based decisions, which overall impacts their social, economies and environmental well-being. This is proportional to the number of educated citizens present in that society. This education need not be always academic qualifications, it primarily include the practical and technical skilled labor prevailing within the society. A particular societal decision making capability is also depends on the adaptability of new technology and software development facility. Peoples' capability of analyzing their community analytic reports and data, and responding to their current trends and concerns, is also considered as education. For example, environmental and water pollution reports, as good examples of societal reports. Apart from this using and analyzing their Web based data and its adaptability to network with neighboring societies, making their society more of environmental friendly.
- B. **Quality of life:** In general quality of life for any society, has different perceive such as education, health and sanitation. Among these education is on the high priority due to its inbuilt capability of distinguishing between good and bad, apart from making decisions as right or wrong. Primarily education raises the economic status of families, which improves several life conditions, and finally entails education for next generation. Apart from this perspectives, quality of life is also considered as lower in infant mortality and poverty eradication. In recent era, the infant mortality and poverty eradication has been direct impact on the society's quality of life. This is precisely so even for the protection of environmental protection.

Therefore by default, education plays a central role for sustainability. By nature, education and sustainability are two inter twinned, as a helping has to each other. It is something like mutually give and take situation. At the same time, it is also wise to think and re-think, that mother earth is always giving many things to human first but in reciprocation from human end is highly questionable. Education at that junction comes in handy to reshape the local environment, economy and help improving the societal constraints. Among the several components of sustainability education, the main focus is towards improving the basic education, and re-focus the current education system towards sustainable development. In spite of knowing that this is not an over-night task, needs evolution of human generation and peoples' min-set. Once we view the SEP as a social awareness activity, the next view-point is look at it as a precautionary measure. In this view-point, one needs to pay a strategic thinking process forward, which clearly focus on the execution part SEP, as described below.

2.2 Sustainability education as a Precautionary Measure

At several occasions, sustainability education can be thought of as a precautionary measure in our real life. It clearly demarks the border between what can be done and what can be avoided or eliminated. Precautionary measure may not provide any reasonable or readymade solution to a given environment problem, but at the same time it gives many ways of avoiding it. As a precautionary measure it can be a way of restructuring the business process or service to capture bigger market.

Several researchers revealed that funding is an important factor for strong education system in any nation. At the same time, the social culture supportive of learning, which is much more challenging task. In several developing countries, the government invariably supports funding but fails to elevate the social and cultural values. For this reason, the overall teaching techniques and learning methods vary drastically in most developed nations and many of the Asian countries. Some view the education as a moral right the other view as an extra-curricular activity. Thus the existing shared social beliefs within the society impacts teaching and learning techniques. The underlying moral purpose of education become clearer, as we move towards sustainability education system.

The following are some of the expected successful educational outcomes due to Sustainability Education System (SES):

1. It can teach the natural way of life, both livable and lovable.
2. It can teach the "quality" aspects of life on this planet, without impact on next generation.
3. It preserves the natural products and processes like, clean air, water and vegetation
4. It help preventing certain health-hazards

III. A Relational Map of Technology and Sustainability

Technology has been a useful tool, for addressing and resolving many business and industrial problems in more effective and efficient way. This ongoing technological trend, is start expanding exponentially and slowly fine-tune the corporate world, towards better economic levels. This interesting relational map and vital source, is coupled with sustainability factors, start contributing towards economic growth.

The emerging technological advancements playing a vital source of energy to the young generation, towards sustainable entrepreneurship, start playing as intertwined with its impact. At the same time there is no upper limit for this technological growth. Therefore the relational map between "technology" and "sustainability" is phenomenal and hand in hand activity. This relational map and its support for future generation suitability products can itself could be a separate research area, out of the scope of the current research work.

This relational map surely form a stepping stone to SEP at different stages of its development, surely needs well designed plane process. Unlike industry and academic relational map vital for national economic growth, this relational mapping can be useful in educational and environmental growth.

IV. Traditional Education Systems (TES) + Sustainability Factors (SF) = Sustainability Education Systems

Education system has been a driving force for cultural and economic development, since several centuries. Strictly speaking, people around the world have recognized two broad seminal facts about sustainability viz.,

- Education is an essential tool for achieving sustainability
- Current economic development trends may not be realizable unless people ware of education for sustainability

Traditional education system is more systematic and straight forward towards societal development. At the same time, recognizing the sustainability factors and accordingly fine tuning the existing education system for future generation is precisely the attempt of SES. Therefore Traditional Education Systems + Sustainability

Factors is Sustainability Education System. Before one go in search of sustainability factors, let us first look at what has been unsustainable to our society. These are several indeed, already witnessed by us in our real life such as lack of water conservation, overuse of personal transportation, inefficient use of energy, increased population, etc. Many of these factors are intertwined with our culture and tradition, which needs to be face-lifted in view of today's sustainability issues. For centuries together, our traditional education system (TES) is well designed as constant "incremental process" of information distribution. If we further zoom into this TES, one can easily realize that this TES it looks like a traditional "waterfall model" of software development [2][4][8] as shown below in Figure 02:

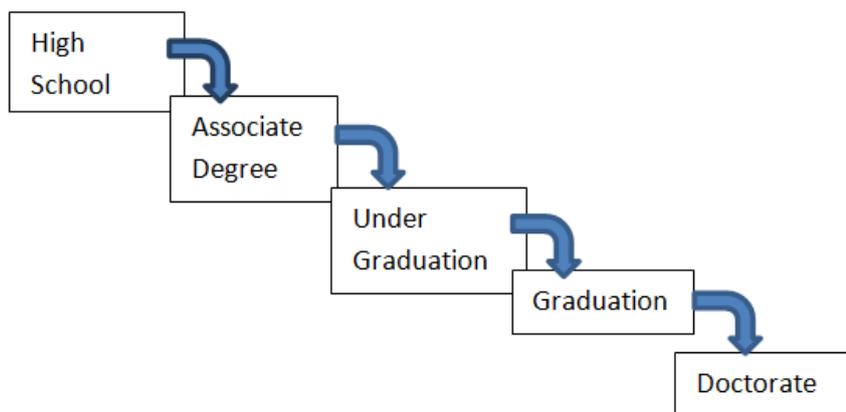


Figure 02: Traditional Education Process

At each step is a set of well-designed course contents with solid number of principles and practices. This fine linkage between several levels of education needs to be strong for better quality. This "linkage part" is precisely varies in several education systems such as Westers, Asian, etc. Sustainability factors, emerge from nature, such as Air, Water, Environment, etc, that help long term viability for our businesses, working culture, daily routine activities, and many more real life applications, can be realized through education system. These viability components are not newly invented phenomena, instead one can say that they are newly realized facts that surely help smooth transition of current businesses to the next generation. Sustainability education system (SES) is not relatively new to us, but human perception towards it is fine-tuned in recent decades. This research narrow down its attention towards educational aspects of sustainability shown Figure 03:

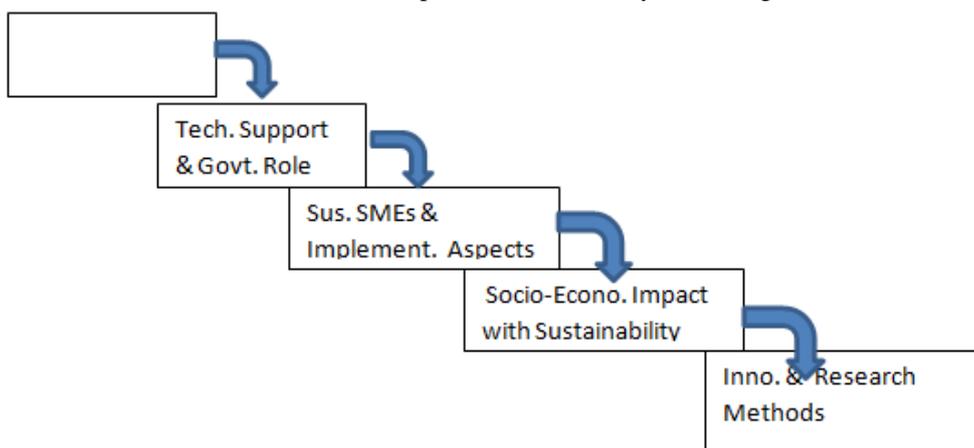


Figure 03: Abstract view of Sustainability Education Process

It is worth notice that these five levels of sustainability, described above, viz.,

1. The basic need and the green initiative
2. Technology and government initiative
3. Sustainable entrepreneurship and SMEs development
4. Socio-economic impact of sustainability
5. Innovative and research methods in sustainability

play an abstract view of the SEP. For a complete visualization, these levels need to be map on to TEP, with various course curriculum at various educational institutions. This is the place academic institutions play a vital role. Regarding curriculum development and its depth at these levels is beyond the scope of this research work.

These sustainability factors were well discussed by several authors in the past [10][6]. Broadly speaking the primary sustainability factors includes, Economic, Social and Environmental. Education has been primary factor for establishing, realizing and implementing these factors, at different levels such as primary, secondary and higher levels of education.

Now the primary focus of injecting these sustainability factors in our education systems will make next generation to realize their importance and importance; is precisely the goal of sustainability education system (SES). This view point leads to several open questions as detailed below:

- How do we categorize the sustainability factors at different levels?
- How do we allocate these sustainability factors at different levels of our TES?
- How does the existing TES course structures will be effected with these new sustainability factors?
- How does this new SES will lead our businesses and business processes?

V. Principles of Sustainability that support “sustainability education system”

The past literature clearly dictates several pertinent principles and practices which are vital for its implementation. The following are some of the principles developed by Rio Declaration of Environment and Development [10]. It is not meant for checking, weather an organization or its management follow these principles or not, but these are for a social awareness activity [10][5].

- People are entitled to a healthy and productive life in harmony with nature.
- Development today must not undermine the development and environment needs of present and future generations.
- Nations have the sovereign right to exploit their own resources, but without causing environmental damage beyond their borders.
- Nations shall develop international laws to provide compensation for damage that activities under their control cause to areas beyond their borders.
- Nations shall use the precautionary approach to protect the environment. Where there are threats of serious or irreversible damage, scientific uncertainty shall not be used to postpone cost-effective measures to prevent environmental degradation.
- In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process, and cannot be considered in isolation from it. Eradicating poverty and reducing disparities in living standards in different parts of the world are essential to achieve sustainable development and meet the needs of the majority of people.
- Nations shall cooperate to conserve, protect and restore the health and integrity of the Earth's ecosystem. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.
- Nations should reduce and eliminate unsustainable patterns of production and consumption, and promote appropriate demographic policies.
- Environmental issues are best handled with the participation of all concerned citizens. Nations shall facilitate and encourage public awareness and participation by making environmental information widely available.
- Nations shall enact effective environmental laws, and develop national law regarding liability for the victims of pollution and other environmental damage. Where they have authority, nations shall assess the environmental impact of proposed activities that are likely to have a significant adverse impact.
- Nations should cooperate to promote an open international economic system that will lead to economic growth and sustainable development in all countries. Environmental policies should not be used as an unjustifiable means of restricting international trade.
- The polluter should, in principle, bear the cost of pollution.
- Nations shall warn one another of natural disasters or activities that may have harmful transboundary impacts.
- Sustainable development requires better scientific understanding of the problems. Nations should share knowledge and innovative technologies to achieve the goal of sustainability.
- Warfare is inherently destructive of sustainable development, and Nations shall respect international laws protecting the environment in times of armed conflict, and shall cooperate in their further establishment.
- Peace, development and environmental protection are interdependent and indivisible.

These principles are exclusively designed for suitability development for a nation, regions and communities. Among these some are completely and some are partially applicable for SEP. Apart from its applicability most of the time its implementation play a vital role in reality. Once its implementation evolves, then one can realize and grasp sustainability development, through SEP.

VI. Constraints and Hurdles for Sustainability Education System

Broadly speaking the sustainability factors surely boosts the TES, from three different perspectives viz., sustainability as a process, development and challenging task. The first aspect of viewing sustainability as process is more apt for the design of SES. The other aspects such as sustainability development and a challenging task is more applicable for businesses and corporate world, beyond the scope of this research work. The sustainability development starts with the following factors:

- Past literature dictates 3 Ps, which stand for People, Planet and Profit needs to be satisfied much before an entrepreneurial activity can be labelled as sustainable [8].
- Every business take care of natural environment. Environmental care should primarily include, eco-friendly product development, use of solar and bio gas sources, sustainable industry fields, etc.
- The profit of a business organization is to be useful for improving the global and local communities which shape our natural and social environments.

At the same time, there several hurdles for implementing the sustainability factors in to the existing TES. For example, the economic factors such as GDP of the nation, per capita income, poverty level of the nation, etc. There is no straight forward answer to this seminal constraints, as they are multi-complex issues by default. As a strategic vision, every nations should implement the SEP at an early stage, as much as possible, proposed in our next section SEP framework. This will be the basic foundation stone for its success in many angels.

VII. A Framework for Sustainability Education Process

The existing social and environmental challenges are precisely originated from the rapid development of technologies, life style choices and finally ways of thinking that human beings have developed and passes down over centuries. From strategic viewpoint facing these challenges will require an education that directly addresses them, helping tomorrow’s citizens to develop new technologies, new lifestyle choices, and new ways of thinking. Sustainability education, which stems from a special process described in this section, expected to support young generation, in developing the knowledge, skills and habits of mind and heart they need to create sustainable communities. These communities in turn help balancing ecological systems that support us. Sustainability education is expected to integrate the social, economic and ecological dimensions of the human endeavor. It primarily establish and emphasize the relationship between these three critical realms. This sustainability education courses that needs to be projected more towards system-thinking and practical usage of sustainability factors, in improving the quality of human life. In the same vein the modern corporate culture and competitive market has clearly revealed two seminal facts viz., extensive use of computer based systems and significance of sustainability facts [7].

Existing Education System	Sustainability Education System
This provides basic insight into the topic and its application to real world problem solving.	This brings in the social awareness and the needed environmental support for continuing the businesses.
This provides different techniques and solutions for handling existing business processes and practices.	This brings in the long term viability aspects for better productivity and quality of business processes and products.
This is more useful towards an individual’s professional growth with limited insight into the environmental needs and deeds.	This brings in the strategic growth and help protecting the planet earth.
This is totally depends on existing technology and its support.	In many ways, this is above to changing technological trends and computer based systems.

It is also realized that three prominent factors forms a triad in this context for sustainability as defined below in Figure 04:

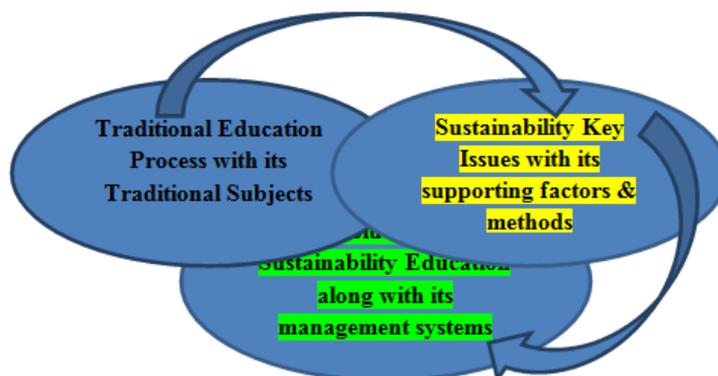


Figure 04: Sustainability triad

The conceptual frame work of sustainability education proposed here is not to alter any of the above mentioned education systems, instead it help creating an added value through social awareness and precautionary measures. In this way the education values and the existing business processes if any, can be carried over to the new generation in a smooth way. In addition, this frame work consolidates certain basic facts about the environment and impacts young entrepreneurs. The main differences between ordinary education systems and sustainability education systems can be summarized as following.

In general, this sustainability triad explained above form a basis for basic, elementary and high education process. The same three prime factor analysis for SEP can be visualized in details from a horizontal mapping point of view as following figure 05:

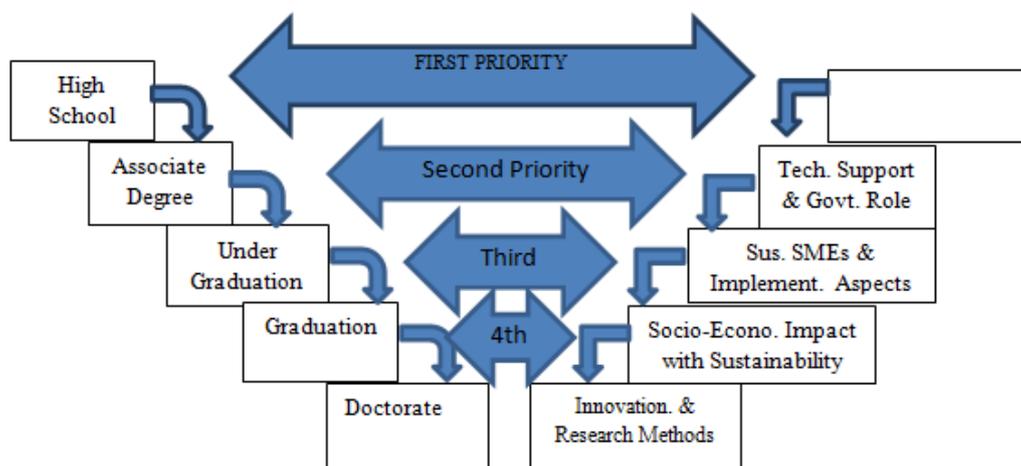


Figure 05: Frame work for Sustainability Education Process

VIII. Suggestions and Advices to the Urban and Rural Educational Institutions

In principle, an education system needs to be uniform throughout any nation. In view of recent societal developments and environmental constraints, it is not become possible to maintain this consistency. With the growing technological advancements, there is a demarcation arise between urban and rural education systems. For example, the urban area educational institutions have been enjoying a very good infrastructure of roads and transport system, which is still lacking in may rural areas. Thus the education system too needs to take different factors into consideration in developing and adopting the student needs.

The three primary factors that segregate the urban and rural education system includes [6].

- Expenditure investment in the education
- The conditions to run an educational institution
- The quality of teachers

In recent years, the expenditure investment in the education sector has been growing exponentially in most of the urban areas. This is primarily due to institution's infrastructure development, library and laboratories development and most importantly providing adequate security to student population. Most of these expenditures are barely covered by the state or central government, apart from some local industrial helping hand. At the same time, this factor is not quite clear for rural areas, due to several factors such as migrant workers' children, on time salary distribution to teachers, and lack of funds. Lack of certain hardware facilities such as school building construction and deficiency of multimedia equipment, discouraging the student and parent communities in rural areas.

Secondly the parents' education being low in most of the rural areas, the students are not well-informed about the significance and importance of education, bringing a sort of gaps in the rural societies, without much correlation among all. How the development and challenging task of SEP and its reality is yet to be developed. Finally the majority of teacher population in rural areas are just graduates from school, lack of sufficient work experience. In addition to this fact these teachers enthusiasm is greatly lowered by their low salary and treatment.

In spite of these marginal differences in rural and urban education systems, the SES adequately throwing enough light on the following three aspects:

- Socio-economic conditions
- Environmental and ecological constraints
- Education awareness, as a socio-environmental activity, rather than pure academic activity

IX. Conclusions and Future Possibilities

This research primarily concludes certain demarcations between, education about sustainability and education for sustainability. Academic institutions are mostly responsible for socio-economic environmental growth. SEP should clearly demark its strategy as a social awareness activity and precautionary measure. As a secondary conclusions, there should be logical mix between the sustainability factors and TES, for better results. A clear demarcation is established between TES and SEP, coupled with five levels of sustainability. A proper insight is established for a smooth transformation of existing education system, towards sustainability education system. Finally a horizontal integration established the frame work for SEP. A methodological way of implementing SEP at rural and urban societies is establishes.

References

- [1]. Laudon K and Laudon J (2015), Management Information System, 12th Edition, Prentice Hall, New Jersey USA
- [2]. Saleh Al-Zhrani (2010), Management Information Systems Role in Decision-Making during Crises: Case Study, *Journal of Computer Science*, Vol. 6, No. 11
- [3]. ObasanKehinde A, and SoyebouYousuf (2012), Management Information System as a Catalyst to Organizational Performance in the 21st Century: A Study of Selected Banks in Nigeria, *American Journal of Business Management*, Vol. 1, No. 1
- [4]. Nowduri S. (2011), Management Information Systems and Business Decision Making: Review, Analysis and Recommendation, *Journal of Management and Marketing Research*, Vol.07, Jan 2011
- [5]. Cecora J (2000), Entrepreneurs and SMEs in Regional Economics: Policy Issues for Sustainable Development in Global Economy, *International Review of Sociology* Vol. 10, No. 1, pp83-100
- [6]. Yang Yang (2014), Study of the Urban and Rural Education's Fairness in the field of Public Service, *Chinese Studies*, Vol. 3, No. 1.
- [7]. Allan B, Heurtebise A and Turnbull J (2010), Improving Information Access, Business management US Retrieved from <http://www.busmanagement.com/article/Improving-Information-access/>
- [8]. Matthias Barth (2013), Many Roads Lead to Sustainability: A process-Oriented Analysis of Change in Higher Education, *International Journal of Sustainability in Higher Education*, Vol. 14, Issue 2, 2013
- [9]. Sinclair J, etal (2008), Conceptual Learning for Sustainability through Environmental Assessment: Critical Reflections on 15 years of Research, *Environmental Impact Assessment Review*, Vol. 28, Issue 7, October 2008.
- [10]. The Suitability Curriculum: The Challenges for Higher Education, Edited by John Blewitt, Cedrick Culling ford Published by EARTH SCAN, London 2013