

Sustainability Through Frugal Innovations : An Application of Indian Spiritual Wisdom

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Abstract

Today, the entire world is on the brink of disaster. The waves of crises like global warming, climate change, financial crisis, mental traumas, and tensions are engulfing mankind. Many business strategies are being discussed with sustainability as the watch word. In this context, the age-old Indian wisdom has much to offer. The gap between the haves and have-nots is on the rise. Affordability of many products is becoming a distant dream for the common man. To cater to the needs and wants of the contemporary world, firms have to adopt frugal innovation to produce low-cost and high-quality sustainable products/services. The aim of this paper was to create a conceptual model of understanding sustainability through frugal innovation by combining ideas from these fields and basing the model on the spiritualistic perspective of Indian wisdom. The case study methodology was adopted to substantiate the above conceptual model.

Keywords : frugal innovation, sustainability, *Yagna* spirit, entrepreneurship, Indian scriptures

JEL Classification: J11, O31, Q01

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In today's hyper-connected world, the powerful global leaders from business, politics, academics, technology, social, and environmental domains are meeting at various world forums to evolve solutions for solving the crises that plague the planet, people, and businesses. Climate change, global warming, ecological imbalances, unemployment, income disparity, high cost of living in emerging economies, debt crisis in advanced economies, corporate frauds, energy crisis, family bickering, violence against women, homicides, terrorist attacks, political instability, cybercrime, food crisis, health issues, volatility in prices, sanitation, and water scarcity are the most important global risks we are encountering as we enter the second decade of the twenty-first century. The world is caught in a quagmire of crises.

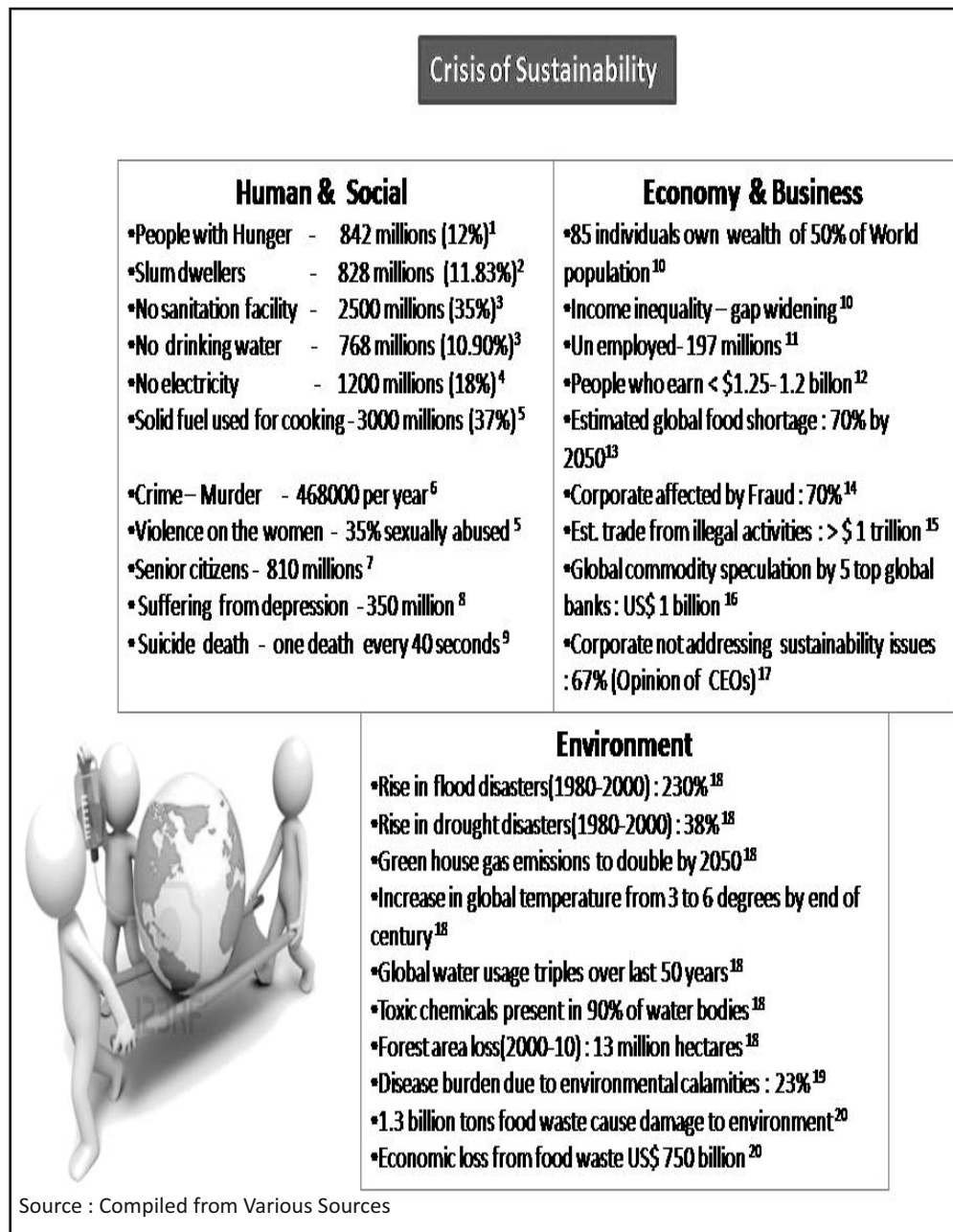
Since two and a half decades, sustainable development has become the watchword for solving global crises. The word 'sustainability' has been defined in the Brundtland Report of 1987 as development which meets the needs of the present without compromising the ability of future generations to meet their own needs. On these lines, many solutions are being discussed at various world forums for sustainable development. Many strategic initiatives are being taken by governments of various countries towards achieving sustainability in all the three spheres - people, planet, and profits. Yet, the global risks that haunt the world today are far from addressed and are exponentially rising.

Currently, 'sustainability' is in big crisis. It has to be revived by infusing new strength and outlook. We are

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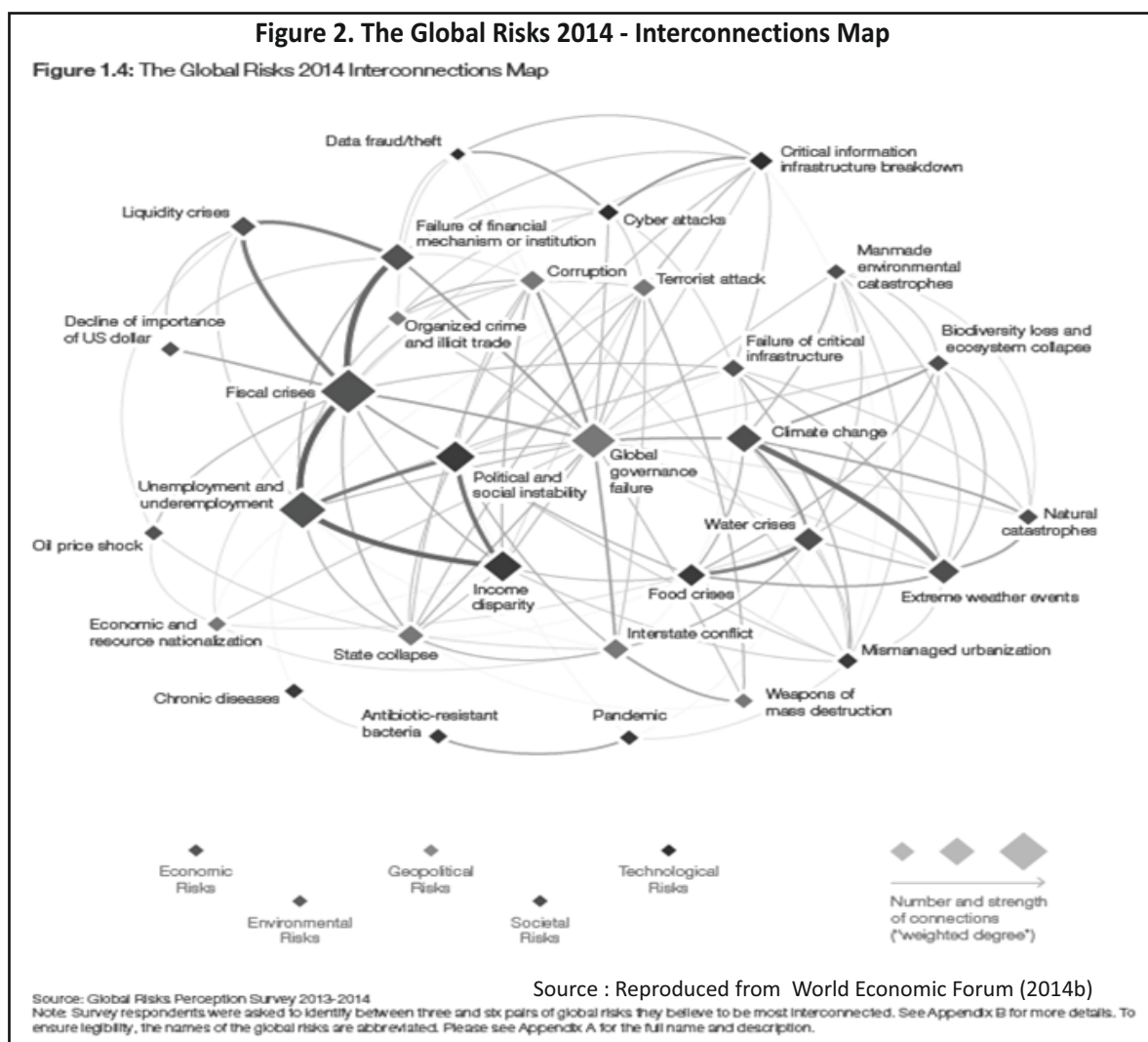
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Figure 1. Crisis of Sustainability



herewith presenting the big picture of the 'crisis of sustainability' with alarming facts, which substantiate this viewpoint (refer Figure 1). These issues cannot be isolated and tackled independently as they are all intricately interconnected with each other. A recent study by World Economic Forum (Global Risk Report, 2014) on the impact of interconnectedness of global risks clearly substantiates the above perception (refer Figure 2).

Though the world forums are discussing the interconnectedness of the global risk factors, there is a conspicuous missing link which is triggering the global catastrophe. We posit that this missing link is the inherent element of human greed. The solution to sustainability is yet to factor in the process for elimination of human greed.



Greed and Selfishness - The Root Cause for Global Crisis

“Earth provides enough to satisfy every man's need, but not every man's greed.” -Mahatma Gandhi.

Startling facts that haunt us today reflect human greed:

- ✦ While 842 million people suffer from hunger (World Food Programme, 2013), the top global banks earned profits through commodity speculations (Kaufman, 2011).
- ✦ While 85 individuals own half of the world's wealth (Oxfam International, 2014, p.2), 1.2 billion people barely earn USD 1.25 a day (Olinto & Uematsu, n.d., p.1).
- ✦ While we live in a hyper-connected, technology dominated knowledge age, 828 million urban residents lived in slum conditions (2013 statistics) (United Nations Human Settlements Programme, 2013), and 1.1 billion people do not have access to electricity (World Bank, 2015).
- ✦ When 663 million people do not have potable water (United Nations Children's Fund 2014), 90% of the water bodies are being polluted with toxic chemicals by money-minded industrial houses (United Nations Environment Programme, 2013, p. 3).

Al Gore, Former Vice President of United States of America and Nobel laureate stated in his book *An Inconvenient Truth: The Planetary Emergency of Global Warming and What We Can Do About It* that human greed has created havoc on mother earth. According to Al Gore (2006) :

Global warming, along with the cutting and burning of forests and other critical habitats, is causing the loss of living species at a level comparable to the extinction that wiped out the dinosaurs 65 million years ago. That event was believed to have been caused by a giant asteroid. This time it is *not an asteroid* colliding with the Earth and wreaking havoc: it is '*us*' (human beings). (p.10)

Four decades ago, Schumacher (2011), a world renowned economist and the author of the book, *Small is Beautiful: A Study of Economics as if People Mattered* prophesied :

The modern economy is propelled by a frenzy of greed and indulges in an orgy of envy, and these are not accidental features, but the very causes of its expansionist success. The question is whether such causes can be effective for long or whether they carry within themselves the seeds of destruction. (p. 18)

If human vices: such as greed and envy are systematically cultivated, the inevitable result is nothing less than a collapse of intelligenceif whole societies become infected by these vices, they may indeed achieve astonishing things, but they become increasingly incapable of solving the most elementary problems of everyday existence. (p. 18)

The Gross National Product may rise rapidly: as measured by statisticians but not as experienced by actual people, who find themselves oppressed by increasing frustration, alienation, insecurity, and so forth. After a while, even the Gross National Product refuses to rise any further, not because of scientific or technological failure, but because of a creeping paralysis of non co-operation, as expressed in various types of escapism on the part, not only of the oppressed and exploited, but even of highly privileged groups. (p. 18)

According to *The Bhagavad Gita*, Chapter 16, Verse 21, human greed is described as one of the triple gates of hell ruining the individual. Today, the greed of a few individuals is ruining the whole society and the planet when millions are still poverty stricken (Ranganathananda, 2000).

Sustainable solutions in the three spheres of people, planet, and profits shall remain an unfulfilled dream as long as we ignore the impact of human greed and the futility of not recognizing it, and subsequently adopting processes for eliminating it.

A New Look at Sustainability for Overcoming the Global Crisis

We herewith explore some of the prophetic views of the great visionaries who looked at the impending global crisis and offered sustainable solutions before the term '*sustainability*' was coined. Pyarelal (1958) described the views expressed by Mahatma Gandhi :

In addition to the economic and the biological, there is another aspect of man's being that enters into (human) relationships with nature, namely the spiritual. When the balance between the spiritual and the material is disturbed, sickness results. (as cited in Lindey & Anand, n.d, p.1)

Schumacher' book discusses in length about Buddhist economies based on spiritual values and ethics of creating wealth. Bill Gates, in his path-breaking speech at World Economic Forum, 2008 said :

Capitalism harnesses self-interest in helpful and sustainable ways, but only on behalf of those who can pay. Philanthropy and government aid channel our caring for those who can't pay, but the resources run out before they meet the need. But to provide rapid improvement for the poor, we need a system that draws in innovators and businesses in a far better way than we do today. (as cited in Kinsley & Clarke, 2008, p. 10)

Bill Gates further said that the world requires a system where self-interest and concern for others would be intricately blended. His words reveal the prevailing gap in our approach to sustainability. This gap can be bridged by applying the age old wisdom of spiritual principles which the modern world is trying to re-discover.

According to Indra Nooyi, Chairman and Chief Executive Officer, PepsiCo, USA at the World Economic Forum (2014a), “We must change the dialogue from what we do with the money we make to how we make the money” (para 3).

Swami Vivekananda was prophetic in revealing (as cited in Chandrasekhar, 2008) :

Today, when material ideas are at their height of their glory and power, when man is likely to forget his divine nature through his growing dependence on matter and is likely to be reduced to a mere money making machine, an adjustment (spiritual) is necessary. (p.241)

Swami Vivekananda felt that spiritual principles should not be confined to the privileged few ; rather, these should be spread across the globe and should be assimilated by everyone in their daily lives.

According to Swami Vivekananda (1970):

If the fisherman thinks that he is the Spirit, he will be a better fisherman ; if the student thinks he is the Spirit, he will be a better student. If the lawyer thinks that he is the Spirit, he will be a better lawyer, and so on. (p.206)

Hence, spirituality and business practices should blend in right proportions for the progress of mankind. World renowned spiritual leader, Mata Amritanandamayi Devi (Amma), whose spiritual mission is to spread the message of motherly love to this distressed world, delivered her recent address “*Harmony through Diversity and Dialogue*” in China. It was organized by the UN Alliance of Civilizations (UNAOC). She said that we have to acknowledge that even though we are one in essence, externally, we are different.

According to Amma (Devi, 2012):

An awareness of the need for coexistence amidst diversity is the only way to alleviate the suffering of others.For 40 years, I have been communicating with people of all languages, races, colors, castes and religion, from the very poorest to the rich and famous, through the language of love. (para 5)

Our focus today should neither be on dependence nor on non-dependence, but on interdependence. This is because the human race, the animal and plant kingdoms, and the whole universe are all interdependent. (para 6).

Reverence and respect are rare qualities in today's world, leaving us with a society lacking in proper maturity. Education, acquisition of knowledge, science and technology may help us advance to unimaginable levels, but if the result is a mentally and emotionally immature generation with no sense of discrimination, it would be truly catastrophic. (para 7)

Pope Francis, in his message to participants at the World Economic Forum, 2014 said ("Pope Francis' message to World Economic Forum in Davos," 2014) :

The international business community can count on many men and women of great personal honesty and integrity, whose work is inspired and guided by high ideals of fairness, generosity, and concern for the authentic development of the human family... Without ignoring, naturally, the specific scientific and professional requirements of every context, I ask you to ensure that humanity is served by wealth and not ruled by it. (para 9)

The disciplined human mind makes you a better human being and a good business leader. Such a well-controlled mind is an outcome of spiritual practices and values. Meditation is normally a domain of spirituality since ages. Today, it is becoming a part of the corporate world as a tool for stress management. The yogic way of meditation, Buddhist way of meditation (mindfulness) is becoming popular in leading business schools and giant corporations.

Austerity and self - control are the practices in spirituality to gain control on self. Modern business acumen is rediscovering 'austerity measures' as effective tools for doing business in effective and efficient ways. Profit maximization was considered as the goal of the business in the last century. Today, businesses are focused not just on profits, but are looking beyond profits - towards 'stakeholder' welfare. Famous Nobel laureate Mohd. Yunus said that he was in a business to solve human problems, and not to earn profits.

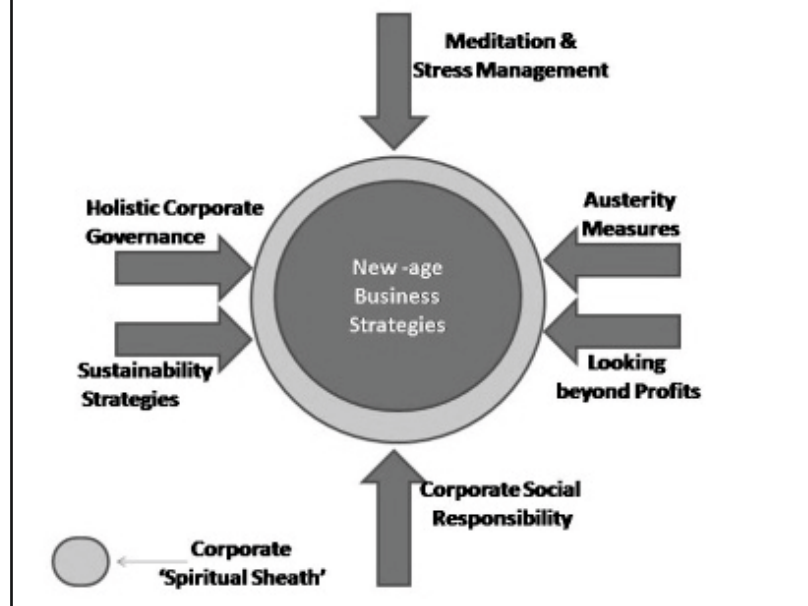
Corporate social responsibility initiatives, sustainability strategies, corporate governance are aiming at the well being of society and the planet apart from profits. Business houses are evolving these strategies after understanding the principles of 'interdependence,' which is the core of spirituality. The integration of business principles with business strategies is depicted in the Figure 3.

These spiritual principles are being wrapped around by the corporates as a protective sheath in the current age of crisis. The effort and the effect with reference to this approach are remaining cosmetic and peripheral. This holistic strategy is not yet adopted whole heartedly by the corporate houses to bail them out from crises.

★ **Innovations in Global Crises** : Necessity is the mother of innovations. Today, the core necessity to overcome the global crisis is spawning several innovations. The twenty-first century hyper-connected and crisis-prone world is dominated by technological innovations. It is an established fact that the future of the world depends upon innovations. Innovations should not be just limited to technology. Today, there is a compelling need for innovations to extend to the following domains apart from the three domains of sustainability :

- ★ Business solutions,
- ★ Wealth creation and employment to millions,

Figure 3. Spiritual Principles Adopted by New-Age Businesses
Spiritual Principles being adopted by New-age Businesses



- ✦ Resource replenishment of the planet,
- ✦ Product/service affordability and accessibility and,
- ✦ Exploring new approaches to enhance spiritual and ethical values for human well - being and doing business.

The current global crisis can also provide multitude of opportunities which could trigger innovations and become the growth engine for various sectors of the world economy. The Table 1 is a summary of opportunities open to innovation from three important sectors of the global economy. Similar opportunities for innovations exist in other sectors too.

Sustainable solutions are to be enriched by a holistic approach that combines innovation with spiritual values from traditional wisdom. A holistic strategy is required which augments the existing three domains of sustainable solutions by : (a) being open to innovations (innovative pull), (b) adopting spiritual wisdom and values for creating wealth and doing business (spiritual push).

An innovative pull and a spiritual push shall put the engine of sustainability on the fast track of growth and prosperity (see Figure 4). The above mentioned strategy of spiritual push and innovative pull of the three domains of sustainability can be conceptualized through a model based on Indian wisdom.

Conceptual Model Based on Indian Wisdom

(1) Spiritual Push : The following is an explanation of the first part of the model presented in the Figure 4. The universe moves in cycles. Creation, sustenance, and dissolution are the three eternal facets of this cosmos. This principle is the basis for the age old Indian wisdom. From microcosm to macrocosm, from a nano -second to a millennium, all are believed to be in a ceaseless cycle of motion. Indian seers could discover the changeless substratum for this changing phenomenal world, that is, "*Brahman*". The names and forms undergo change, yet the spiritual core of this multitude of existence is one. Names and forms are the waves in the ocean that undergo rapid change, yet they are all '*one in substance*' as water. Perceiving the 'unity in diversity' became the guiding

Table 1. Innovation Opportunities on Account of Global Risks

S No	Sector	Risks because of Global Crises	Opportunities Open for Innovations
1	Building and Construction	-Constrained availability and increased cost of materials -Limits on development opportunities in water-scarce and high biodiversity areas	Increased market demand for -Sustainable infrastructure and green buildings -Storm-damage repair/reconstruction, energy efficiency retrofits and technologies -Increased demand for renewable, recycled, and resource-efficient materials and processes - Green design and construction certifications
2	Healthcare	High cost of medical treatment Areas of malnutrition Pollution effected diseases Lifestyle diseases Woman and child care HIV and other contractible diseases	Innovations required in -developing new low -cost health products/services (pharmaceutical) - developing new low cost medical devices and application of digital technology - environmentally enabled healthcare products and systems - healthcare financial services like low -cost health insurance - business models to accommodate public-private partnership Research required in -treatment of illnesses resulting from environmental changes and exposure to pollution. - Traditional medicine like Ayurveda, Unani, Yoga etc.
3.	Food & Allied products	Volatility in food prices due to natural calamities and commodity speculation ; Low agricultural yield and scarce availability of agricultural land ; Water scarcity and conflicts in sharing waters ; Threat of chemical, fertilizers, genetically modified products ; Supply chain and intermediaries constraints	Biotechnology can provide new strains of food grains that are resistant to climatic fluctuations. Research on ICT platforms needed to link the farmers directly to the end user Innovation in farming techniques like precision farming solves land productivity and water scarcity concerns (Madhavan, 2012). Innovation needed to increase land fertility using eco-friendly means. Organic farming Food packing and distribution Supply chain opportunities - Transportation, infrastructure Energy Farm labor empowerment New industries and research in marketing food products

Source: Adapted from United Nations Environment Programme (2013). Geo-5 for Business 2013: Impacts of a changing environment on the corporate sector.



light for the sages of India. This wisdom of “oneness” guided the day to-day interactions; value of this mutual interdependence unleashed the culture, tradition, and civilization of ancient India.

Madhu Brahmana of *Brihadaranyaka Upanishad* says :

This Earth is (like) the honey (effect) for all beings and all beings are (like) the honey (effect) for this earth. Likewise, the bright, immortal being who is in this earth and the bright, immortal, being who is in the body – indeed, these four are just this Self. (as cited in *Mantras*, para 1, Sethumadhavan, 2012)

People and other beings profit from the planet and the planet gets profited by the contributions of the beings in various sustainable ways. Today, the greed and selfishness of a few people is turning this honey into poison. As our planet is losing its honey (rich resources), the beings are losing their honey (prosperity). This principle of mutual interdependence got translated into practice of *Yagna* in ancient Indian.

This concept of *Yagna* is central to Indian ethos and values. *Yagna* is the cosmic principle on which the whole creation is sustained. It connects the individual with the universal for mutual benefit and prosperity (Chandrasekhar & Shivdas, 2014).

Ages ago, Lord Krishna advised us through *The Bhagavad Gita* about the wheel of *Yagna* - the wheel of mutual interdependence, which means giving to the world what you have taken from it. “First give before you take” is the *Yagna* spirit exhorted by Shri Krishna.

Swami Ranganathananda (2000) said :

This *Yagna* concept is not merely of earth; it is not limited to our own human experience. This has a cosmic dimension. The whole cosmos is based upon this concept of *Yagna*. That is a wonderful development of thought you will find in Vedanta as well as in Gita, that everywhere there is give and take going on. Before taking, give; then you get the best. There is unity in this universe. Everything is related to everything else. Nothing is unrelated. This is a wonderful idea in modern physics also; the event taking place in any part of the world affects the whole world... The old concept of *Yagna* is today developing into the truths of ecological balance. (p.266)

Explaining about the rationale of *Yagna*, Lord Krishna further said “*Parasparam bhavayantah sreya paramavapsyatha*” (Bhagavad Gita Ch. 3, Verse 11) meaning by cherishing each other (nature and human being) or by helping each other, one obtains the 'highest good' (Bhagavad Gita Ch. 3, Verse 11).

In the words of Swami Ranganathananda (2000) :

The principle of a healthy social life is also based on this '*parasparam bhavayantah*' principle; not by fighting with each other, but helping each other, serving each other; that will help all people to rise to the highest level. If you take from nature and not give back to nature, you will suffer. Take and give back, take and give back, that is the nature of a healthy human-environmental relation. And as I said earlier, today we are realizing it by experiencing the evils of consumerism, over-technology, increasing industrialization and all the various steps human beings are taking that cause poisoning of the environment... (p.271)

Lord Krishna revealed the *Yagna* Spirit of 'give and take' by explaining the wheel of *Yagna* in the following shlokas (Bhagavad Gita Ch. 3. Verse 14 and 15) and gives a conclusive advise that, “if anyone who does not follow the wheel of *Yagna* which was set in motion, since the beginning of creation and only delights in senses, lives in vain and is an evil doer” (Bhagavad Gita Ch. 3. Verse 16).

Creatures (beings) cannot be separated from 'creation' and are always connected to 'it'. The wheel of creation,

that is, the cosmic cycle is always in motion and the interconnection between largest planet and smallest worm exists for eternity. The human being who acts selfishly and leads a life of greed and sensuality without caring about the welfare of other beings, breaks the wheel of *Yagna* (the cosmic cycle of interdependence), is an evil doer and lives in vain. The concept of the wheel of *Yagna* can be applied to a business as a simple 'give and take' principle; because all the stakeholders of a business organization are interdependent in a business scenario.

We have previously developed a philosophy of “*Yagna* entrepreneur” based on the wisdom of the “*Yagna Spirit*” as extolled by Lord Shri Krishna in *The Bhagavad Gita*. We (Chandrasekhar & Shivdas, 2014) defined a *Yagna* entrepreneur as :

A person who focuses more on the cause for which he has founded the enterprise rather than spending his energies maximizing profits. That does that mean he shuns individual prosperity. The spirit of *Yagna* centers on the concept first give before you take. A *Yagna* entrepreneur is a blend of personality who aims at individual prosperity and social well-being.

The four important traits of a *Yagna* entrepreneur identified therein are :

- (1) Be mission oriented and prosperity follows,
- (2) Be stake holder centric - look beyond profits,
- (3) Empower the employees,
- (4) Be ascetic, altruistic, and have a spiritual orientation.

This entrepreneurial concept can be extended to the business enterprise by taking into account the interest of various stakeholders. According to Chandrasekhar and Shivdas (2014), a business enterprise which works in the spirit of *Yagna* has to focus on each of the following factors first by contribution, before obtaining the goodwill and returns from all other stakeholders.

Employee empowerment	Customer satisfaction
Contribution to community	Partnership with government
Continuous product research for excellence	Vendor credibility
Environmental sustainability	Wining the investor faith

According to Chandrasekhar and Shivdas (2014), “when all the above mentioned aspects are factored into the business, in terms of contribution, the remnant becomes the profit, the *prasad* of *Yagna* entrepreneurship” (p.43).

“A day may be in offing where contributions made by the enterprise to all the stakeholders may be measured as a yardstick for the company's performance instead of profit or earnings per share” (Chandrasekhar & Shivdas, 2014, p.51).

A composite index to measure the stakeholder satisfaction has to be developed, which factors in all the above aspects including spiritual quotient of an organization to understand its holistic performance. This *Yagna* Spirit should be considered as the 'spiritual push' for the organization, which propels sustainable solutions on its holistic path and gathers momentum with the 'innovative pull'. The rationale for considering the frugal innovation approach as the 'innovate pull' is discussed in the next section.

(2) Innovative Pull : The second part of the model mentioned in the Figure 4 is explained here. Sustainable solutions are partially successful in solving the problems of planet, people, and businesses. Today, the entire

world is suffering due to huge income disparities, majority of the population from emerging economies are still living below the poverty line, and resource-crunch is prevailing across the globe. As discussed earlier (refer to Table 1), every segment of the economy or industry is open to many sustainable business opportunities and innovations to overcome the current global crises. There is a compelling need to augment the sustainable solutions through a surge of new age innovations, especially frugal innovations. Mankind should be offered with affordable and accessible innovations (frugal) which have the ability to generate more business revenue and enhance social and spiritual values, while significantly reducing the use of resources and simultaneously enriching the environment.

Tiwari and Herstatt (2014) defined the term frugal innovation as :

[...] new or significantly improved products (both goods and services), processes, or marketing and organizational methods that seek to minimize the use of material and financial resources in the complete value chain (development, manufacturing, distribution, consumption, and disposal) with the objective of significantly reducing the total cost of ownership and/or usage while fulfilling or even exceeding certain pre-defined criteria of acceptable quality standards. (p.30)

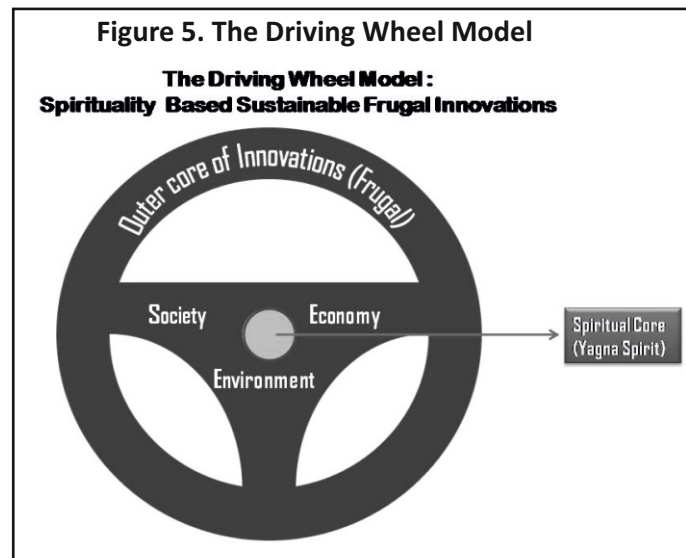
Further, Bound and Thornton (2012) conceptualized frugal innovation as :

An innovation that responds to the limitations of resources, whether financial, material, or institutional, and using a range of methods to turn these constraints into an advantage. Through minimizing the use of resources in development, production and delivery, or by leveraging them in new ways, frugal innovation results in dramatically lower - cost products and services. (p.6)

(3) India: A Bedrock of Frugal Innovations : India, with its huge middle and lower middle class population , surging economic growth, huge technological human resource pool, untapped potential of rural markets, presence of traditional business communities, and globalized multinationals is open to a plethora of innovations in products and services which are affordable and accessible. Taking all these factors into its stride, India is rapidly transforming into a hub of innovations that are being termed as 'frugal innovations'. Over the period of years, Indian business acumen has come out with various products and services pertaining to frugal innovations, such as, low cost mobile telephony services by Bharti Airtel, Tata Swach and Tata Nano by Tata Group, Narayana Hrudayalaya, Aravind Eye Care, Jaipur Foot, chotuKool by Godrej & Boyce, and so forth.

(4) Conceptual Model : As discussed earlier, sustainable solutions require a spiritual push and innovative pull. The *Yagna* Spirit is the spiritual push, while frugal innovation is the innovate pull. The combined strength of these three elements shall become the holistic and futuristic model for driving the business enterprises on the road of prosperity and well-being. Drawing inspiration from the steering wheel of an automobile, we have evolved 'The Driving Wheel Model – Spirituality Based Sustainable Frugal Innovations' represented figuratively in the Figure 5.

The spiritual core (*Yagna* Spirit) is the center from where the three radials (society, economy, and environment) of sustainability emerge and converge into the 'outer core of frugal innovations'. CEOs sitting at the driving seat should be able to steer the business enterprise with all ability and ease when powered by the three elements. Based on the above conceptual model, we analyzed select corporate entities from the perspectives of their involvement in: (a) frugal innovations , (b) 'sustainability' practices, and (c) core philosophy and values are in tune with the traits of the '*Yagna* Entrepreneur'.



Case Studies

Case 1 : SELCO

(i) Organization: Solar Electric Light Company (SELCO)

(ii) Industry: Energy

(iii) Entrepreneur: Mr. Harish Hande

(iv) Innovation Details: Provides low cost solar panels to unserved poor in rural areas -125,000 households. Providing low cost services by creating grass root entrepreneurs who rent out lights to individual customers. Innovations in technology innovation by designing low cost compact photo voltaic cells.

(v) Sustainable Practices : Since the past 20 years, SELCO has shown that empowering rural customers can be economically, socially, and environmentally sustainable. They have supported over 10 solar entrepreneurs, set up over 200,000 solar home lighting systems, employed over 375 people (Selco-India, 2008). Apart from that, their 'light for education' project motivated students to attend schools. Solar chargers were set up in schools and the students had to charge their batteries for home only in school. If they didn't go to school for a day, their house would be in darkness. This has resulted in 30,000 students regularly attending schools in Karnataka (Ramani, 2014).

(vi) Core Philosophy Quotes : Harish Hande said in an interview to Mitra (2007) :

The focus in the initial period was not looking at where money was, but rather looking at what the success level of the technology was, and if people would accept it. If you asked me if I would start the business the same way, I would say absolutely. When you have no money, you tend to be more innovative. The financial development which has happened during the last 12 years has happened because of the shoestring methods we originally employed. (para 5)

(vii) Inference : Harish Hande is an entrepreneur who looks beyond profits with a committed mission and vision, not only to light rural India with clean energy, but also to brighten the lives of the poor by scaling up innovations. This indicates the nature of a true *Yagna* Spirit frugal innovator.

Case 2 : Tally Solutions Pvt. Ltd.

(i) Organization : Tally Solutions Pvt. Ltd.

(ii) Industry : Software products

(iii) Entrepreneur : Mr. Bharath Goenka

(iv) Innovation Details : Revolutionized Indian business scenario with a simple, yet powerful lowest priced accounting software for SME segment that later scaled up as one of the best ERP packages. Today, more than 9 lakh businesses spread across 100 countries benefit from Tally. The uniqueness of this innovation is its codeless software with a natural language interface and path breaking remote functionality. The uniqueness of the business model is, it sustained itself as India's first popular software product company, and was the first to launch free service and breakaway commercial terms including free upgrades. The highly dedicated business partnership network empowered it on its way to success (Tally Solutions, 2015a).

(v) Sustainable Practices : Since the past 25 years, Tally has shown that it strengthened several business entrepreneurs with powerful yet simple software for doing business through its frugal innovations and networked social partnerships for making the end users get maximum user friendly experience. Thus, socially, technologically, and economically considered as the best product by capturing 80% of the market share.

(vi) Core Philosophy Quotes: Like a true *Yagna* entrepreneur who is successful, Bharath Goenka and his father believed that making profits is secondary to offering the best solutions to customers. As he said in an interview, "Even I am in the business of making money, but my point is this: you can never be in the business of making money, you have to be in a business - money is an outcome of that" (Yorke, 2008, para 5). He further said, "We were unclear how long it would take us to get to a million - 25 years later, we are still trying to reach even the 1 million mark. But in 1986, we were clear that we want to be able to touch millions of customers. Therefore, we remained focused on our product line"(Yorke, 2008, para 2).

(vii) Inference : Today, the word Tally has become synonymous with accounting/ ERP solutions in India. This ubiquitous software has changed the way of doing business in India by empowering several SMEs and large corporates. The company is driven by Bharath Goenka's core philosophy based on Indian spiritual values : To make everyone who touches Tally happier.

The devotion with which the products were innovated and the zeal with which the innovative business partnership network was established, reveals the discipline, the value systems, and societal commitment of the entrepreneur. His vision has not only touched the stakeholders - employees, customers, and partners, but also benefitted the Indian business community. In November 2011, NASSCOM honored Mr. Goenka with the first ever 'Lifetime Achievement Award' and the title of "The Father of the Indian software product industry" (Tally Solutions, 2015b).

Case 3 : AIMS

(i) Organization : Amrita Institute of Medical Science (AIMS).

(ii) Industry : Healthcare founded and managed by: Mata Amritanandamayi Math (MAM) - A charitable trust.

AIMS is a 1450 bed super-specialty tertiary care health center. With extensive facilities comprising 25 modern operating theatres, 210 equipped intensive-care beds, a fully computerized and networked hospital information system (HIS), a fully digital radiology department, NABL accredited clinical laboratories, and a 24/7 telemedicine service, AIMS offers total and comprehensive health solutions comparable to the best hospitals in the world. The institution is equipped with 12 super specialty departments and 45 other departments. The hospital is using fully digital imaging services as the first institution in South East Asia (Amrita Institute of Medical Science, n.d.).

(iii) Innovation : Providing low cost health care services to the needy by extending free and concessional treatment to over 63% of the patients (Amrita Institute of Medical Science, n.d.). Free drug bank provides the needy with prescribed drugs at no cost. The patients who are able to pay cross subsidize the free patients. Tele medicine services provide remote diagnostic services to patients in remote areas. There are 60 national and nine international centers.

(iv) Sustainable Practices : AIMS being a part of a huge network of charitable activities undertaken by MAM throughout the world is popularly known as 'Embracing the World' (ETW) under the spiritual guidance of world renowned spiritual guru Mata Amritanandamayi Devi (Amma) has integrated sustainable practices in every service provided by it. For example, AIMS has tied up with Paris-based international charity organization, The Heart Fund to provide free life-saving open-heart surgeries and endovascular treatments to poor in India. AIMS patient services provide medical services to the poor and needy. The Liver Transplant Programme at Amrita Institute of Medical Science successfully completed 10 years of service with 325 liver transplantations in June 2014. Community outreach through satellite hospitals in tribal areas, telemedicine services conduct more than 100 free health camps in remote, impoverished areas ("Embracing the world", n.d.).

An action oriented mass awareness campaign to keep the public places and surroundings clean, the students and staff of AIMS participate actively in the campaign conducted by the institute regularly. A huge recycling plant at AIMS effectively handles huge quantities of waste. The huge eco-friendly infrastructure of 3,330,000 sq. feet within 125 acres of land supports a daily patient strength of about 3000 outpatients with 95% inpatient occupancy and medical educational institutions like the medical college, dental college, college of nursing, college of pharmacy, center for nano sciences, and other medical research facilities.

(v) Core Philosophy: According to Amma :

Just as a person needs air to breathe, the soul needs to be nurtured with love and care. The need of love is felt the most when we fall sick, physically or mentally. More than half the cure is done by the power of love. Hence, doctors and nurses also have a special responsibility to treat their patients with love, care, and affection. (Mata Amritanandamayi Math, n.d., para 1)

(vi) Inference : The institute has maximum outreach in Kerala because of reduced healthcare costs. It is supported by research and academic institutions. The spirit of giving in the form of love and compassion is the core that drives the business model to cater to the needs of the poor and reaching remote areas using technology. It utilizes the revenue for further development.

Managerial Implications

According to Ronald Berger Consultants, more than half of the world's GDP will be produced from emerging markets. Developing countries will export three out of every four products. Apart from that, the rise of middle class consumers in these economies has also increased by leaps and bounds. According to Euromonitor, in 2010, over 50 million households in the emerging economies earned more than USD 35,000 per year, this is expected to rise to 117 million by 2020. Several companies that have observed a saturation in developed nations, will surely look forward to setting shop in these lucrative economies. But, in order to make an impact, companies will have to go back to the drawing board and design frugal products to cater to these consumers. Corporate leaders will have to imbibe the principles of a *Yagna* entrepreneur to lay inroads in such markets. The ability to offer affordable products with comparable quality will be the thumb rule. The future sustenance of most of the companies across the globe would depend on their success in emerging markets. The companies must be ready to give first and wait to reap the rewards. The driving wheel model is a prescription of how companies and leaders will have to offer frugally innovated products along with a focus on the society and the environment to successfully reap the bountiful harvest of profits in the future. The case studies presented above is an attempt to present to the world how management principles focused on welfare of stakeholders first would surely lead to long term gains.

Conclusion

The present paper attempted to explain the impending necessity to relook at the currently employed triple bottomline concept of sustainability. A novel conceptual model termed as 'Driving wheel model: Spirituality based sustainable frugal innovation model' has been developed. The rationale for this model has been discussed at length. The cases analyzed herewith are the typical examples of our conceptual model. We sincerely feel that intensive research is required to analyze the validity of the model. We look forward to future research in this line of thought.

Our first steps are small, yet firm, and we believe that the longest journey starts with the first step. When sustainable solutions are given the required push by the core values of spirituality, and if these are pulled by the power engine of innovations, the planet becomes wealthy and green, people become prosperous and peaceful, and profits become abundant and enriching. The spirit of interdependence shall become the blissful and sweet essence of life.

Limitations of the Study and Scope for Further Research

This paper majorly focuses on India and Indian concepts to develop the model. This can be extended to other emerging BRICS nations. The institutional set up of a nation is very crucial for the fructification of innovation and also the ideas that lead to such innovations. Further research that takes into account the institutional components of a nation could be looked into. The concept of reverse innovation could be applied and it should be taken up for further analyses along with the concept of the *Yagna* Spirit. Emphasis on looking at the role of the *Yagna* entrepreneur and their traits needs further research, especially taking into account entrepreneurs from other emerging economies.

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