

THE TECHNO-GANDHIAN PHILOSOPHY



Balamurali Balaji

Founder,

BB Systems (CIT-GPNP)

[The Center for Information Technology and Gandhian
Philosophy of Nonviolence and Peace]



THE TECHNO-GANDHIAN PHILOSOPHY

BY

BALAMURALI BALAJI

Contents

Part I –Principles of the TGP

Part II - Indigenous, Intermediate and Innate Technologies

Part III - A philosophy of sustainable Gandhian values

Part IV – Embracing Green Computing

Part V – Annexure: Answers to Frequently Asked Questions

First Edition October 2010

Revised Edition March 2011

Third Edition December 2012

Fourth Edition August 2013

©BB Systems (CIT-GPNP)

All rights reserved.

Published by BB Systems (CIT-GPNP)

Our sincere acknowledgements to:

www.mkgandhi.org

www.gandhiservefoundation.org

BB SYSTEMS (CIT-GPNP) is a Techno-Gandhian organization with a difference in the world of Information Technology. It is started with a motive of bringing technology and Gandhian Ideology together to end the never ending debate of their co-existence. It is devoted to preach and practice the principles of Mahatma Gandhi and spread the message of non-violence and peace amid much vibrant and frazzled world of these days.

It is a place where you can see a culmination of technology and Gandhian philosophy going hand on hand with lots of energy and power following “The Techno-Gandhian Philosophy™”, as created, developed and experienced by BB Systems®.

It serves the society to enhance the morals and ethics one has to protect throughout his life amid all stress and strain caused due to the overwhelming use of science and technology in all walks of life. BB Systems® deals with the current day’s dilemma surrounding the professionals to assume socio-political roles and responsibilities by imparting Gandhian values.

BB Systems (CIT-GPNP) has spent years of time on Gandhian studies and researching on its relevance and applicability in modern days’ conflicts, issues and negotiations. Shri. Balamurali Balaji, a Techno-Gandhian, is the founder of CIT-GPNP, the Center for Information Technology and Gandhian Philosophy of Non-violence and Peace, also known as BB Systems. He is a member of many Gandhian institutions such as GandhiTopia.Org, Germany, Gandhi Memorial Center, U.S.A and Bombay Sarvodaya Mandal. He is also a member of Indian National Congress Party.

Part I –Principles of the TGP

Introduction:

How do we overcome the difficulties in assuming socio-political responsibilities in our life, yet working for the personal and professional objectives? How to fulfil the commitments made to play a role in socio-political environment yet preserving the rights in meeting the individual needs? How to develop and maintain the moral values while performing the professional duties to lead a self-contained, balanced life? How to cope up with the modern day's technology-dependent life, yet not giving up the professional and moral aspirations? The Techno-Gandhian Philosophy (TGP) comes as an answer to all such questions an ordinary man faces in his life. It is a universal phenomenon that a man has to answer to the call from the socio-political surroundings in which he lives despite being snatched away by the fast paced life of his or her profession. Not every one of us is willing to assume or even think of the democratic and social duties we ought to perform in the world. The choice between the personal/professional ambitions and assumption of a role in socio-political circles is often a cause for all the stress and pressure for many of us. Contrarily, there are people who have a strong desire to take a socio-political stance but their professional and personal backgrounds do not leave them a space for that. Some of us are also striving to serve for a socio-political cause to our abilities yet not finding ways to follow to put them into action. The TGP is defined and designed for addressing these issues and this article explains the various dimensions and the guidelines to follow it.

An overview:

The Techno-Gandhian Philosophy (TGP) was first perceived in 1994 when I was working with Mumbai corporate bodies and since then it has been observed by many personals from various fields of work who wants to apply it in their

lives. It was then designed with a view of understanding the challenging phase of life that involves socio-political responsibilities and impositions that occur particularly in the lives of engineers, physicians, scientists, officers, technicians and other skilled personnel. While the emergence of new and variety of communal and social issues and responsibilities lie upon the individuals, the need for a code in dealing with them begins to increase. During the last two decades, the effort and efficacy of the formulation of a theory in simple yet in a composite form has been envisioned and worked out. The TGP was formulated with a rule of resolving the intricate conditions that provides a way for defining a career and personal identity of one's life. And today, it has become a science of life and developed into a moral code of living in a fast paced life known as the Techno-Gandhian Philosophy.

Man is born with intellectual capacity and is known for living as a community working for his livelihood keeping his relations intact. The organized way of living as a community or a state demands the selection and election of the controller of the community or a state. The importance of better human relations and acceptance of social or political role is obligatory for any person to create peace and harmony in his (her) community and it is inevitable. Sharing of responsibilities and taking of charge is a routine activity and each one of us has to undergo this delicate phase in our life. Each one of us has to spare time to contribute and assume the task we pertain to do for the community or the people we belong to. And, it is not so easy. Many of us try to evade the duties called upon us and simply go with a self-interested attitude to heed ourselves. As a result, we have to meddle with the forces outside us and constantly fight with them unknowingly what and how to find a resolution.

And, it adds fear and pressure putting us in to a poised and vexed state of mind. The kind of trauma generated by such scenarios influences the people not only during the career of the young personnel, but it continues to haunt the everyday life even for the grown, adult professionals. The choice between the professional career and a socio-political participation is always risky in nature and any selection made between the two is looked as a perilous decision. Nonetheless, the tense and panic caused due to such factors are boundless and destined to happen. The distress caused as a result compels us to opt for functioning as an individual or as a group thus providing a space for us to display their exclusive leadership skill or as a team player. It is also observed that the man's communal status and economic conditions rule during such circumstances. So, the technological people finally end up with undefined ways of resolving the matter, more often with a prejudiced and rationale approach. They tend to adopt the conventional, stereo-typed ways of handling the situations and never seem to work out a concrete modality to assume or decline the responsibility.

The theory of TGP is a precise, carved-out philosophy of existing theories and practices in the area of corporate relationships that exist for more than a century and has been a long lasting effort in bringing the professional ethics and corporate leadership into a rationalized, otherwise called as humanistic philosophy. As many have successfully been implemented this theory, many others have seen it as a never-ending practice that undergoes debate between the leadership management and professional individuals. Not many have realized the full potential of non-violent and truthful struggle behind this philosophy which would overcome the worries and troubles. I was striving to employ this when I was part of the software industry to become a complete,

versatile Techno-Gandhian. And, the proportion of success in implementing it in full is still in desolation despite being seen as a beneficial solution.

The “Gandhi” significance

While attempting to devise the modalities for work-centric, technology-oriented social and political responsibilities and roles, it was out of experience I mulled over the theories and teachings of many philosophers and put many leaders and visionaries under contemplation. The teachings and principles of Buddha, Jesus according to me is too religious and in no way countable for one to assume the socio-political responsibility. It requires a complete overhaul of both the mind and body which alienates us from the society rather than playing a role of service within the society. The principles of great philosophers like Aristotle, Aurobindo and Ramakrishna too are theoretical and theological in nature and found to be the ways of retracting from socio-political duties. Most of their ideologies are taught for perfection of our inner soul and mind which has been considered as a longing desire of peace and harmony for the human kind. The Techno-Gandhian Philosophy requires an ideology that serves not as a fitting reply to the socio-political calls but to get along and assimilate the work style with them to lead a balanced life. I believe that Gandhi and his ideology remain as a proven way of managing the day-to-day crisis and conflicts and suggest reasonable methods to practice even by an ordinary man. The concept of truth and non-violence, even though it is difficult for one to achieve in its fullest form, shall be an ideal practice for technologists and workmen to strive upon through out the life thus not leaving both the socio-political responsibility and the technology. As the central theme of the Techno-Gandhian Philosophy revolves around the predicament and management of using the technology alongside the moral values, the qualities and attributes as preached by Gandhi is found to be in perfect suits. Those who knew the life of Gandhi will ever recall

the incident when he was thrown out of a first class compartment of a train which transformed him into a civil rights leader in South Africa. Such childhood experiences and incidents happen to every one of us and the disturbances they cause in our minds are immeasurable. It is these circumstances that pulls us into a deep level of thinking and eventually take us in assuming a socio-political role. Today's ordinary man, mainly the literate technologists have the similar kind of disagreement with the society or polity and are fighting it out every day.

The Life and the Philosophy:

As the technology evolves and spread very rapidly into the roots of our lives in this century, the world is becoming a din of electronic gadgets and the society is aptly dependent on technological innovations. Not to escape from the dominance of so called e-revolution, people live and work at the speed of devices they look at every day. People tend to turn to such technological ushers even for their physical, psychological and humanistic needs. The stress and strain adds to this effect, completely injuring the basic, bodily nature of the lives. This trend seems to never cease and continue to evolve and revolve around the lives of human beings. And, we foresee an endangered, e-controlled society in very near future. In very few years, the human kind will have to survive under the grip of possible technological storm that would sweep away our livelihood by mechanised, programmed and automated actions.

Some people believe that spirituality is the answer to get out of this disastrous situation. Spirituality is a way to relax and relieve from the pains of the fast paced modern life. The spiritual practice could help us forgetting the stress caused by the day long work temporarily. Same is the effect when we do or attend a religious ceremony and the real solution does not actually lie in these

religious or spiritual spheres. The spiritual practice, according to me, does not exclude the role of technology and modern day scientific invasion from us. It tries to teach us how to live with that and cope up with the pressure created by them. It compels us to provide time to practice it. What the Techno-Gandhi Philosophy (TGP) suggests is a permanent solution and a time-tested way of life that has the mantra “*Do not shun away from technologies. Do live with traditional values.*” History has never abandoned the changing times and the shifting paradigms the world is going through. The TGP suggests us to go with the technology for necessity and for the needy. It suggests us to carry values along with us through out the day, but not for an hour or so in the evenings and week ends. A thin line connecting technology and values and living with that sounds rather political to many. But, we must understand the society and social surroundings in which we have to live with. We must try to learn the difference between the two ends and put us comfortably in a society. The Gandhian principles of *swadeshi*, *swaraj*, *sarvodaya*, *satya*, *simplicity*, *serenity* are the perfect ideals one has to adopt in their life. The Gandhian ideology gives us a way of life that we can practise with in the technological world to attain complete freedom and life of our choice. As we put the values imbibed in our life, the clout of technology that occupies us will hide away and provides us a space to work on ourselves with morals that adds simplicity to our life. The TGP compels us not to provide time, but a space for practising it. TGP can be practised by anyone of any age and gender as it offers a moral support amid a much complex, technically infected society.

The 5 core rules of Techno-Gandhian Philosophy (TGP) are as follows:

1. “Do not shun away from technologies. Do live with traditional values.”

2. “Spirituality is for those who want to exit away from the intricate life. TGP is to lead a simple, yet, balanced life with in the complex structure of the social environment.”
3. “TGP is about pursuing a give-and-take policy of trade-off between technology and moral values in one’s life”
4. “TGP is not for implementation at a particular stage in life, but for practice through out the life.”
5. “TGP is neither religious nor spiritual in theory and practice.”

How to practise TGP in our life?

Identifying the technological needs and understanding the Gandhian ideology are the basic requirements for us to practice TCP in life. Technological innovations and tools are becoming part of our lives and have penetrated into the day-to-day activities of each one of us. Right from the early morning exercise to the night’s day out, we are getting accustomed to the invasion of western pattern of life style and extensive use of technology. Talking over the mobile while walking, listening to media player while moving, carrying hand-held devices for communicating and sharing data, using computers at office and home, electronic vending machines and gaming systems, watching television and browsing the internet are some of the technology oriented activities we are into. Furthermore, we have to accustom ourselves to the use of technology at public places like airports, bus and railway stations, community centres, malls, shopping complexes and government offices and departments. While the living style is gradually inclining to the western culture, the living conditions are driven by technology. The technology changes everyday at a rapid speed and continue to influence us with its versatile performance and workmanship. We, literate or illiterate, are forced to learn to live with the changing conditions and the process of learning keeps going for ever. Sooner, the act of learning

becomes the passion, and then it becomes an act of chasing the technology. Ultimately, one ends up with the loss of values that he has been speaking for and he has been known for. The mechanics and automation of such a transformation has to be understood clearly and we must draw a line of control and call for the basic and purposeful technological use. Identifying the needs for the technology and its restricted access and use alone will help us come out of this booming threat.

The 5 ways to identify the right technology:

Choose the technology or tool that will not

1. give you pleasure, but meet only your needs
2. cut down your physical activity
3. affect your psychological attitude
4. empower or guide you even in darkness
5. transform your image and identity in society

We have numerous ways of using technologies in our day-to-day life but choosing the right ones based on the above constraints is little difficult. One may own a mobile for communication purposes but it is exorbitant to watch television or a movie on it. One may go on a little walk for relaxation but it is unreasonable to use a treadmill machine for this exercise. One may rather engage in a regular workout but not to be mindless after spending hours in playing games in a play station fighting the virtual demons and sprites. One may verify with his friend rather not depending on his digital route map panel to show him a way to a new place. These are the few things or occasions where most of us could loose the human connections and human interventions in our life. So, we shall not allow the technology or the profession superseding the socio-political role we are supposed to play. We shall not allow us to be

isolated putting our own people unnerved. One may well be fit in “Be Yourself” tag but not to live as a stranger in the community.

Practising Gandhian ideology

Out of all philosophies or ideologies, I believe that the Gandhism or Gandhian principle is the most appropriate for a common man to ponder upon and follow as religiously as a creed or any other religion. The ingredients of Gandhian ideology are authentic and simple to apply in our life. It is an open protocol that could go hand-on-hand with other philosophies and can be applied on all walks of life. A Gandhian artist does a livelihood through his art works yet maintaining the values he learnt from Gandhian ideals. A Gandhian teacher takes a work in school or college yet he continues to live with Gandhian principles in practice. A Gandhian doctor could show his empathy and love towards the people coming to him yet keeping his scientific part of his profession grow with no interventions. This kind of culmination of Gandhian ethics and other professions is a phenomenon by itself and it is really hailed as a central theme of Techno-Gandhian Philosophy.

Today’s youth is targeted by violent forces for seeking petty benefits and fighting against social injustices. Lack of adequate ideological approach in solving the issues is becoming scarce amongst us and they are susceptible to unwarranted actions that give them alternating justice. Engaging youngsters, however violent and unruly they are, in to work would surely bring them in to a more vivid, non-violent strategic path towards the future. It would give them hope and confidence that ties them into their lives not to get agitated or indulge in others’ lives. Many scientists have even proved that people focusing on work show non-violent tendency towards the society in which they live, even though their work involves harsh and hard kind of physical labour.

Mahatma Gandhi stated 11 vows for his fellowmen to follow while pursuing the struggle for freedom. The TGP condenses them and adds few more tenets to pursue a clean socio-political role. The 7 vows one needs to pledge and practise Techno-Gandhian ideology are as follows:

1. Be truthful in thought, speech and action.
2. Take only vegetarian food. Have a balanced diet.
3. Work for a cause besides performing a bread labour that earns us a living.
4. Show reverence to all human beings regardless of their caste and creed, race and religion.
5. Refrain from the use of drugs, alcoholic beverages and sedatives.
6. Treat all religions as equals.
7. Use Ahimsa as a key instrument in all the endeavours.

The above mentioned vows are the basic and the core principles we ought to keep in our mind and action while practising TGP. The secret of following these vows successfully is to take one vow at a time and make a resolution to practise it for a period of time (e.g. 45 days) and then move on to the next one. Thus, all the seven vows can be practised within a year and repeating the same technique for two or three years will become customary afterwards.

Limitations of TGP:

Life is of complex structure in terms of relations and existence. We have to live with the contradictions and the challenges. And, the TGP is not an exception. The conception of technology indisputably contradicts with the Gandhian ideology. But, this disagreement is the meeting point for the better understanding of life in present day circumstances. The TGP requires a basic knowledge and skill to survive in the world besides being humane and civilized

in the society. It is not for those who are unprepared to work and show sign of disrespect to the age old ethics. The oppressed and subjugated people could benefit from those who have honestly practised TGP, but not to use TGP themselves to see gainful effects. Furthermore, TGP is a long-lasting and a permanent course of action and one cannot expect immediate results.

Positive outcomes of TGP:

Practising this philosophy may be a challenging task for an ordinary man on first look but, upon discovering the differentiation of the technological limits and Gandhian morals, it ceases to exist as a challenge. People, whether rich or poor, once they get introduced to the TGP, the simplicity of life shall be the outcome with the economic and technological hitches removed and barred from a routine life. A true Techno-Gandhian shall be honoured with lots of praise both from the field of work and from the socio-political spheres. It rightly fills up the gap that forms between the conventional Gandhian way of life and modern days' expectations of what a Gandhian can offer to the world. It is ideally suitable for both the rich and the poor.

The rich people may follow TGP by entering into Swadeshi¹ and Sarvodaya² based industries, see marginal profits and lead a peaceful life. The poor people while venturing into modern and technology-based industries and earning considerable profits, shall maintain their morality and human values through imbibing TGP factors into the life. Both the technology and ideology takes their stakes equally in one's life. As a result, we can build a society that has both the rich and the poor live happier with dignity. This would reduce the gap between the poor and rich economically and morally.

¹ A term used by Gandhiji to refer local production of goods to develop village based industries

² "Universal uplift or progress of all" used by Gandhiji to promote equality in society

Summary:

The Techno-Gandhian Philosophy, at the first glance, is seen as a programme of normal routine and everyone's schedule by many observers. Particularly from an individual's perspective, it serves as just a great tool to enhance the morals and ethics one has to protect throughout his life. But, as we put a deeper understanding and exploration on the socio-political grounds, the TGP could be seen as a basic solution for many of the issues haunting in the society and politics. A true Techno-Gandhian could travel an extra mile with the sheer audacity and truthfulness in his mind to face today's evils of injustice, poverty, illiteracy and scarcity of morals in the society. With his vision and gained support of the peers, the society and the world could benefit a lot in general along the path of wisdom, truth, non-violence and peace. Conclusively putting it altogether, the policy and phenomenon of TGP has an immense message of socio-political responsibilities to be adopted to contribute to the world of the needy and the deprived.

Part II - Indigenous, Intermediate and Innate Technologies

Innate Technology

As widely used, traditional or ancient technology is a technical, social, organizational and collective memory of human response and answer to the complexities of life and is an inherent part of the great human experiment of survival and development. Mankind has existed on this planet for millions of years and it was in the beginning of the known civilization, he chose to face the nature with his own knowledge and available resources at that moment. And, that was the technology for survival, not for excellence.

Traditional technology was being practiced for many centuries during the era of known civilizations of the Indus-valley, Harappa-Mesopotamia and of Mongolians. These civilizations are called so as they had some organized living style and conditions, set some laws to live as a community. Technologically, their knowledge was pertained to nature and instincts caused by the wants of the people or by the royal command, usually the King or the community head, which enjoyed seeing new things being done by his people.

Thus, the inventions during the civilization era had distinct relation to the organizational needs of preventive and precautionary nature. India with her vast heritage had this kind of wisdom of challenging the natural concerns, but with the lesser knowledge of rational and scientific value. For many centuries, she continued to remain with the philosophical and cultural legacy with its people earning the realistic intellect finding their own place in the world. No one would deny the fact that the west has adopted the substantial amount of wisdom

from the east, especially India, but followed the path of scientific understanding of the matter and human life.

The technologies such as design and planning of water resources, astronomical findings, natural air conditioning, complex stone work, textile manufacturing and construction engineering were understandably prominent among ancient communities in India. A smelting furnace dated back to 800 BC is found in Naikund (Maharashtra), India, revealing the fact that iron was known in the Ganges valley in mid second millennium BC. Indian contribution to metallurgy was in the isolation, distillation and use of zinc. Indian farmers developed non-chemical, eco-friendly pesticides and manures which produced better results as compared to the current day's fertilizers. Crop rotation and soil technology that has been passed down for thousands of years are traditional practices which India pioneered.

In the field of mathematics, the concept of indivisibles, zero, and algorithmic approach in computational math were all Indian discoveries even so that the game of chess had its origin in India. Traditional use of herbal medicine is typically an integral part of culture, but was developed within an ethnic groups lived in India well before the development and spread of modern science. Another category of conventional knowledge called non-literate folk science was very much part of our ancient tradition. However, we have to ingratiate ourselves that the distinction between elite and folk science was almost absent in the ancient times since much of the development and technological advancements happened only in the recent centuries, Like a jewel in the crown of the Indian traditional knowledge, the discovery and practice of inner sciences of mind and consciousness, meditative and yogic sciences are far too excellent even today.

Modern day scientists are still astonishing over the archaeological discoveries of sustained livelihood in the ancient times just by the means of modest knowledge and skills, which are inborn and unscientific. The tools, weapons, utensils, mineral mines, sculptures, and murals etc have all become a matter of wisdom for them and are finding the clues of the skill, expertise and materials used in traditional technologies. And, it is interesting to know that the traditional, innate knowledge of our ancestors are truly unparalleled to the modern science even though the traditional technology is held in perpetuity from generation to generation, informally occurring over time.

Intermediate Technology

“*Appropriate Technology*” as called nowadays was originally suggested and practiced by Mahatma Gandhi through which he advocated and attained small, local and village based economy and self reliance through mass spinning and weaving. He disregarded the industrial revolution and technology that benefited very few at the cost of the majority of the people. He believed that technologies put people out of work for the purpose of profiteering. In the pre-independent India, mill owners and merchants were working for economic freedom, relying on the machinery brought from Europe and producing foreign clothes. They supposed that their loyalty to the British would give a boost to the national movement.

It was Dr. Ernst Friedrich "Fritz" Schumacher, a British economist who articulated the intermediate technology to the Government of India, with his 1962 report where he described India has suitability for such technology. With more labour power and less capital, he called for an intermediate industrial technology that would ideally meet our economic needs. In the later years, India

was progressively adopting the intermediate technology in the fields of agriculture, energy and environment.

The Intermediate technology is entirely based on the rural areas of poor countries and constitutes some salient issues like the rural poverty, lack of knowledge and skills, and the difficulty in reaching and organizing the rural population. This type of technology features a simple, low-cost and productive method that serves the under-developed nations of the world. In essence, the development of the intermediate technology is characterized by three features.

- i. Aim for highly productive, upgradable yet traditional ways of doing things.*
- ii. Simplify and strip-down the expensive, labour-saving accretions from the machinery or equipment.*
- iii. Innovate ideas; Systematize and present it in a useful form.*

As many think and believe, *Intermediate technology is not a stage in the evolution of technology in the human history. It is neither a thing of the past nor about re-inventing the wheel. Rather, it is constantly practiced across the world to test the times and to challenge the future dimension of the human kind.* It is a new radical approach in which production technique is subordinate to social needs. It must be looked upon as downsizing or scaling down of a modern, advanced technology to a low-end technology by blending both natural techniques and scientific methods. It requires the skill and capacity for carving the least out of advanced technologies and the best of the natural and traditional ways of applying tactful minds to produce an intermediate product. Not many of try on this as it is misinterpret wrongly time and again, as one feels like going back in the technological race. However, it has its own pride and challenge

In the fast growing economies and evolutionary technologies emerging everyday in the industrial sectors, intermediate technologies failed to gain a promising space due to the shortages in multi-skilled labour and the desire for quicker profits. Rural areas are well covered within the reach of tele-communication channels and media, have greater access to all sorts of modern day equipments and technological advancements. But very few organizations, both the government and NGOs are making the Intermediate technology a reality in certain places. Windmill energy, wind pumps, clay pot refrigeration, tools carved out of mobikes, improved cooking stove (jiko), bio-fuel and energy, irrigation pumps, glass and plastic products, solar lamps and energy, organic Farming, hand operated kitchen tools like crushers, mixers, grinders etc. digital intermediate technology in musical and movie production, tools for sericulture, horticulture and agriculture, powered rickshaws are just a few examples what the protagonists of this technology implement these days.

As opposed to Gandhi's concern: "*Machinery must be of the elementary type which I can put into the homes of the millions... India does not want centralized industrial production and labour saving machinery...Today machinery merely helps a few to ride on the backs of the millions.*", India is hardly imposing the appropriate technology in her pockets. "*Technology for the masses*" has gone stuck into the whirlwind of various economic policies of various governments and we are witnessing a condition where masses becoming obsessed with the technology for everything. Depending on the capital-intensive western technology, job-creation has taken higher priority. What had been dominant by foreign colonialists has simply transformed to domination by foreign technologists. The multinationals, either through their technologies or by direct ownership quickly came to dominate Indian industry. Thus, rather than following Gandhi's lead, Indian industry has followed the pattern of highly

centralized production with a minimum labour force. The inevitable result was the dual society – a small affluent group of urban middle class and rural landlords lying idle and buying western style products,

It is a rare phenomenon when the government assists the small-scale industries and micro-industries based on Intermediate technology, amid glowing political stints. While 70% of the population still lives in the rural areas of the country, we need a matching technology, people's technology, which *“should be capital, energy-saving and employment generating; should be capable of reducing inequalities, providing high job satisfaction, and meeting the basic needs of the people within their means; should upgrade and rather than supersede the traditional skills and crafts; should be based on locally available renewable resources rather than on distantly available non-renewable resources; should ensure effective utilization and recycling of wastes and byproducts; and above all, should lead to preservation and enrichment of the environment rather than its deprivation.”* The power and profits shall not remain with those who have always had them and who have been able to exploit the new technologies as they did the old. In the present economic system, appropriate or intermediate technologies exist and survive only by the grace and favour of the multinationals and big business houses. The issues are not technical, but social and political – about who controls the means of production and distribution.

In the recent years technology is being integrated in to various fields of expertise to create a delusion that technology alone is highlighted as a substituting need for the society. Virtually, there is no area of study where technology is scarcely used and everyone sees it as a boon in their everyday life. To name a few, we have techno biography, techno CEO, techno

commercial, techno editor, techno entrepreneur, techno Ezine, techno investor, techno travel, techno web, techno novel etc. embodying the use of Information Technology and computers in all walks of life which could well thought as Intermediate technology in action. The basic purpose or ingredient of the expertise remains to be the same but, with the touch of modern technologies they are becoming more powerful and versatile than using traditional approach. And, that's where the goals of Intermediate technology become realized; to increase the standard of living for the developing world without disregard, difficulty, or environmental damage. It is highly regarded as the one that meets every aspect of socio, cultural, and ethical needs of the communities that crave for harmony from their hearts.

Indigenous Technology – The real paradigm

Indigenous technology is the one employed by the native inhabitants of a country and which constitute an important part of its cultural heritage and should therefore be protected against exploitation by industrialized countries. The mirror effect of the culture and ethnicity is the heart line of the Indigenous technology.

The development and progression of inherent knowledge and skills must be through insight and inherent methods, resulting into a modern or advanced technology claiming to be resolving the issues of complexity and efficiency involved in existing or innate technology. It must be purely based on science and expertise and in the form of machinery, tools or skill. It requires high degree of acquaintance with the basic facts of physical, meta-physical, biological compounds of the matter to develop an indigenous product that could articulate of our own expertise and heritage. The starting point for such a development is well confined to the tenets of the ancestral knowledge and

skills. Thus, “technology” comprises know-how and skills, goods and services, equipment (hardware) to organizational and managerial procedures, institutions and (social) support structures. To be truly precise, a technology must be compatible with available natural, human and financial resources and correspond to the cultural practices of users.

A technology may range from simple prosthetics (the stone axe) to the Victorian cog and cam, to the valve, capacitor, logic gate, the integrated circuit, the central processing unit, the quantum computer, the stem cell, the nanobot and a million states and applications between and beyond. It is more of invention and composition of the intangible and minute details of the matter and putting it for use in day-to-day world. It might involve both holistic and heuristic approach to apply the creative energy and construct scientific theories unto a lasting or satisfying solution. Indigenous technology at its genuineness, hence, must be of utilizing the natural and knowledge resources of a nation and its people.

The technological growths in other countries have not happened in a day. The roots of the discoveries and inventions the world seen in the last few years are really dating back to many centuries and it was the sheer determination and consistent passion for innovation that has produced countless technological breakthroughs. No one would deny how many centuries it took for the world to see some innovations in their present form viz.; electric bulbs, aero planes, rockets, naval ships and submarines, computers, drugs and remedies, and the like.

In India, the term “indigenous” has failed to set rightly in the minds of people in the sense that ancestral expertise in the fields of astronomy, mathematics,

geology, medicine etc. has not been studied or taken for further improvement. It is too inclined to the western technology or otherwise totally relying on the natural system of doing things. The need for newer technologies is multi-dimensional as well as multi-disciplinary. With the unsatisfied and changing needs of the society, there must be a way to translate human creativity (Research and Development) into tools (Science and Technology) for the improvement of human living conditions. Systematic and targeted efforts in the form of Research and Development (R&D) must be carried out with the exorbitant wealth of natural resources and ecological changes. And, it demands a need for transforming the national scientific and training infrastructure to reflect the facts and complex needs associated with an ecosystem.

Indigenous technology – A modern perspective

These days, indigenous technology is widely seen as a substitute for building economy during the difficult times in imports mostly when we run into severed engagements in our importing process with the other nations. It also ushers the nation to provide low cost, high quality, lean technological solutions. It also has an intrinsic value attached to it as we know its roots and place of origin.

Thus, the very definition of the indigenous technology is used in a different notion. It means many things to many countries. For India, it is more of cutting imports and relying on building our own machines and tools with the help of multi-national companies thanks to the open economy unveiled by the Government of India. Cars, Computers and Software, Health products, Engineering tools and machinery are being manufactured indigenously by allowing the foreign companies to operate from here. Needless to mention, our aeronautical and other high-end technologies are being developed with the collaboration of foreign technological leads. This approach brings down the

imports and related taxes and duties, increases the employment and technological know-how. In this time of post-globalization and liberal economy, indigenous technology has become an elusive and neglected matter of thought.

On the other hand, native industries and companies are moving out and diversifying themselves to market our products overseas, meeting their utility needs, but not their technological needs. The world is looking for our natural products and workmanship skills. But due to economic pressures and the lack of dedicated schools of learning, we are re-modeling and re-inventing their technologies and sell them at the customers discretion. Our organizations are becoming handicapped by the clear and stupendous image of indigenous talent and technology. Their contribution to the indigenous technology is abounding with the effect of acquiring and joining in the development of foreign technologies through overseas employment.

As many industrialists and innovators around the world cry, India is still in need of an efficient, cheaper and India-centric technology for surviving in the global market. To cite for the reasons for this lagging behind, the poor infrastructure and un-trained skill workers stand in the top of the ranking. India has inherently adopted a centuries old life style of labour-oriented technologies rather than envisioning the scientific or facts-oriented technologies. Our ancestors have done a tremendous role in the fields of art, architecture, mathematics, astronomy, agriculture, medicine and lifestyle. But, their innovations and predictions were limited to the god-sent skills or gifts as described by their own scriptures. Our people are nurtured with the skills what our ancestral schools taught and what they learned from the modern schools of thought developed by the western thinkers. The innate poverty due to non-

effective utilization of resources and the inability to think in scientific terms have put us on the back seat except to silently watch the progress happening through foreign technologies. Our laymen and workers are replaced by the machines and tools worsening and weakening the economic structure. As a result, a common man becomes hopeless in adapting himself to the indigenous needs. Most of our efforts are focused on the infrastructure and training over and over again leaving no room for research and development for bringing indigenous technology to the core of our system.

The question is, “*When do we build and practice indigenous systems in our day-to-day life?*” Routinely, we are accustomed to lead a life full of modern and brought-in technologies. Hitherto whatever elucidated in the previous pages is solely aiming at justifying the economic background and perspective of the so-called technologies what have been claimed as indigenous by our industrialists and factory owners. Production and manufacturing is taking place out of semi-indigenous or pseudo-indigenous processes and technologies which we need to believe for commercial and economical reasons. While the use of “Intermediate Technology” been seen as a solace, it needs a complete overhaul in scientific terms within the technological community to invent new technologies and more importantly, find ways to encourage them.

Summary:

For those who practice Techno-Gandhian Philosophy (TGP), the above types of technology meant a lot as the essence of the philosophy lies in the fact that minimal use of any technology would give them an unruffled, peaceful way of life and therefore resolving the conflicting situations arising at socio-political levels within the professional boundaries. One has to cope up with the continuing trend of the technological accessibility and usage in the social

environment which determines the type of technology a techno-Gandhian adopts to follow in his life. As I mentioned before, the context and meaning of the indigenous technology have varied in plenty over the years and the TGP suggests us to lower the technological currents and reinforce the human factors that would concern the harmony of the environment. The TGP also take note of the use of innate or traditional technologies and alleges that they are gradually disappearing from their use these days. As the complexity and competitiveness of the life is growing every day, man's natural tendencies are being driven away insignificantly. Compared to these two types of technologies, the intermediate technology is gaining ground with the TGP also besides being suggested widely by the experts and scientific community in the promotion of both moral values and technological innovations. With regard to the TGP, the intermediate technology might be a larger bite for the smaller fish. Brining together the traditional technology with a modern touch may not ensure the use of technology minimal. Moreover, the intermediate technology is a cost-effective technology for the use by the masses to a larger extent which is actually contending the whole concept of the techno-Gandhian philosophy. Hence, there requires a new world of Gandhian standards with nominal technology.

Part III - A philosophy of sustainable Gandhian values

Sustainable Development

According to Brundtland Commission report in 1987, Sustainable Development is defined as "*a pattern of social and structured economic transformations (i.e. development) that optimizes the economic and societal benefits available in the present, without jeopardizing the likely potential for similar benefits in the future.*" A primary goal of sustainable development is to achieve a reasonable and equitably distributed level of economic well being that can be perpetuated continually for many human generations. Thus, sustainability refers to the development with no side-effects on the social aspects of our life.

Sustainability Issues as perceived by Gandhiji

“Does moral progress increase in the same proportion as material progress?”

This is not a question which has been in debate these days. Even in the days of Gandhi and Nehru, this was the issue to determine the viability of the progress of the nation under British Empire. Gandhi and Nehru have communicated through many letters on many occasions to emphasize village *Swaraj* and village economy through constructive programmes. His concept of *Purna Swaraj* included components such as communal unity, removal of untouchability, prohibition, development of village industries, renewable energy sources, village sanitation, new basic education, adult education, education in health and hygiene, promotion of provincial as well as national languages, economic equality, focus on the welfare of women, students, kisans, labourers and *adivasis*, the place of civil disobedience, and lastly *khadi*. To construct a model village comprising all of these, one needs basic knowledge and minimum technology what India possessed even in those days. On this

possibility of a self-sustained village, he said: *“It's not too late at all. You just don't yet know what you are capable of.”*

But, what we see today is a proactive development that focuses on mobilizing our economy quicker and put us in the global map in a fraction of second. The poor villages, lands and resources are being exploited by the foreign industries and also by our own countrymen and the city dwellers leaving the peasants no control over their own properties. We failed to work on our beliefs and values despite being a global society. We are unable to think for ourselves and therefore, allow multinationals and transnational corporations to dictate to us our wants, which are being thoroughly confused with needs. In *Young India*, Gandhiji stated that *“an increase in resources does nothing to increase welfare, since wants increase correspondingly. The extent to which existing demands are satisfied may never increase because wants rise commensurably with resources.”* The infinite multiplicity of wants has put us on the technology-driven race, but *it is beneath human dignity to lose one's individuality and become a mere part in the machine* as indicated by Gandhi in 1939 itself.

His notion of people's buying behaviour, buying capacity and consumption pattern holds good even today when he stated *“Western nations today are groaning under the heel of the monster-god of materialism”* in his 25th December 1916 speech. And today, India and other Asian countries are slowly becoming dumping yards of the west.

The apocalypse

“I see in the near future a crisis approaching that unnerves me and causes me to tremble for the safety of my country. . . . Corporations have been enthroned, an era of corruption in high places will follow, and the money-power of the

country will endeavour to prolong its reign by working upon the prejudices of the people until the wealth is aggregated in a few hands and the Republic is destroyed."

~ Abraham Lincoln [1864]

Technologies have entrenched into the today's society, governance, developmental policies and people are becoming fully reliant on technological or corporate persuasion. Our social and cultural ethics is forced to facilitate or acknowledge it some way or other, neglecting socio-political morals hitherto followed or what Mahatma Gandhi had preached in his times.

For decades, after Mahatma Gandhi's demise, science and technology have empowered our nation and we have seen a competitive growth in this area. So as our poverty, food inflation, communal clashes, ineffective use of natural resources, brain drain and dependency on external forces! The quality of life has been degraded tremendously over the decades due to deforestation, inhabitation of agricultural lands, negation of indigenous needs and capabilities, industrialization, ecological imbalances and the list goes on and on. Needless to mention the health hazards and stressed life-style what the people have to bear with in this background.

Gandhian values are under stake. People go with the forces not meeting their actual needs but for appeasing the timely persuasions. Those who follow Gandhian ideals are left behind with the stamp of "theorists" or "methodists". Many Gandhians could not survive a reliable livelihood in this technology dominated world. They are often seen as being trapped with the principles which are unsuitable for current day's problems and are being isolated in the socio-political contexts. There exists virtually no space to promote and

inculcate the Gandhian values. The choice between the righteousness and transgression is not given appropriate thought by both the people and governments. Things begin with a competitive spirit and ends with the same spirit.

The “Technology Factor” in sustainability

Sustainability and Gandhian values face the challenges from many quarters in the society. The under-privileged, the unemployed and the youth in general are targeted by violent forces for seeking petty political benefits and for battling injustices. Lack of adequate ideological approach in solving the issues is becoming scarce and we are susceptible to unwarranted actions resulting into the destruction of moral values. The solution to escape from such evil forces is nothing but to orient ourselves to “Work”. Labour, or Employment or Occupation in whatever term we use to refer it, it is the work that brings people to a more vivid, non-violent strategic path towards the bright future. Many scientists have even proved that the workaholics show non-violent tendency towards their environment even though their work involves harsh and hard kind of physical labor.

Technology enabled work is much more solicited not just for the reason being we live in the technology intense world, but the way it could enable lasting, withstanding results. Technology, machines and tools have become a necessity to symbolize the human kind’s growth, evolution and innovation. With the help of technology enabled jobs, hope and confidence gets added to the people’ lives so that one need not have to get agitated or indulge in violent actions for livelihood. This basic function of technology remains to be an essential player in our lives not only today, but also in the future.

Another important aspect about work is its “monetary value”. People are more cost conscious. Employment with no adequate profit or wages would drive them wild and in some cases, leading to launch huge protests and strikes. With the use of technology at work, the basic remuneration has not changed. In fact, technology has amplified the cost, investments and nonetheless the outcomes as well. A nation’s economy too is not based on un-profitable employment.

Keeping these aspects as an ideological standpoint behind peace and development efforts, we have seen a large number of self-help groups, cottage industries, women-empowered industries and agricultural farms. Village-uplift industries, as you name it, are becoming economic zones of improving both the local economy and inviting global players. And, it is not only limited to Swadeshi industries, but also includes modern technological factories comprising garment, electrical, electronic, computer and automobiles. Khadi and other localised productions are housed in certain regions where the rate of literacy and labor is below required norms.

Hence, the progress, service to the humanity and uplift of the poor and the rural regions through Gandhian means has got a twist nowadays. It is not as old as what Gandhi did in his era neither it is about looking out for absolutely new things.

The Economic factor in Sustainability

The economic sustainability is about looking at development through two goggles. We do have two sets of people, one, highly literate, accustomed and ready-to-work people with no opportunities. On the other side, we see illiterate, unaccustomed and unskilled people with no opportunities. While planning for village development as an opportunity, it includes both the Swadeshi and

modern industries and both been catered to and utilized by both the sets of people. But, economically there exists a divide between the people; a divide between the local enterprises and global industries and has become an inevitable issue due. For example, one who works on the sericulture farming (breeding of bees and honey making) is not earning huge profits compared to those who make profits through weaving or knitting. Even though he is illiterate and is trained only for growing bees, the sustainability of values becomes vulnerable if it continues to yield less income. His greedy nature and hunger for unethical ways of doing his business get the precedence damaging the moral values further. And finally, that opportunity ceases to exist.

One of the remarkable effects of the TGP could be this: The rich people shall enter into *Swadeshi* and *Sarvodaya* based industries and see marginal profits. Poor people while venturing into modern industries and earning considerable profits, shall maintain their morality and human values. This would reduce the gap between the poor and rich economically and morally. As a result, we can build a society that has both the rich and the poor live happier with dignity. And, thus emerges the extensive development of the village with the modern industries that matches the rest of the world in all aspects such as work standards and pay wages.

Development on the basis of economic and financial points of view has apparently been emerging as a champion in the nation today. More and more modernization and importing of technologies has become a common sight in cities. Imported machines and tools have become a central focus of our manufacturing units. Nevertheless, we must have a close watch on those technologies, for we never know what we loose when we gain from what we do not own.

We shall not bring in technologies that destroy our values and feed the other nations. Sustainability must be made possible, thus, by indigenous and nationalistic ways. Development with humanist approaches with Gandhian values is the one that we can be proud of. It is sustained forever being a stimulus for upholding the morality, self-reliance, independent and natural ways of living. We ought to recall what Gandhi said, “*The earth provides enough to satisfy every man’s need but not every man’s greed.*”

Revisiting the TGP

The Techno-Gandhian Philosophy (TGP) is a new philosophy developed with the motive of bringing technology and philosophy together to end the never ending debate of their co-existence. It is devoted to preach and practice the principles of Mahatma Gandhi and spread, adopt the message of non-violence and peace amid much vibrant and frazzled world of the day.

Today’s society has been over-shadowed by the wave of modern technologies and there exists a need for sustaining the values and morale as followed by Mahatma Gandhi. The corporate world has been doing little on the indigenous technologies, rather becoming vulnerable to the western technologies in order to build the nations' economy and social upliftment. The objectives of the TGP would meet this condition of obsession with the technologies and provide some remedies to live a moralistic life through Gandhian ideologies.

This TGP philosophy also addresses the current day’s dilemma surrounding the professionals, managers, industrialists etc. in assuming the socio-political roles and responsibilities. The TGP sees itself as a basic solution for sustaining the development by suggesting a moral approach to divest from adverse

technologies and development. It is a culmination of the principles of Mahatma Gandhi and Technological preferences that we agreed to in all our strategies and sustainable-management.

The TGP tells us about how every individual become a responsibility in a socio-political structure and how each of us struggling to cope up with the pressures and demands arising out of our presence or absence in taking a significant role. It suggests every one of us to follow the ideologies of Mahatma Gandhi and how to live the “Gandhi” within us. And finally, the Techno-Gandhian Philosophy is explained as a means of simple and sustainable livelihood through which an individual, society and the nation can thrive amid all undesirable, eco-damaging, humiliating experience both at home and the workplace.

TGP – constitutes the following main features:

1. Sustaining Gandhian values by strictly following Gandhian ideals.
2. Use less technology by optimizing the needs and style of living.
3. Executing the socio-political responsibilities even while being a professional in any discipline.

How exactly the TGP contributes to sustainability?

The Techno-Gandhian Philosophy allows everyone of us to maintain the socio-political responsibility which comprises the features such as social service, communal harmony, political discipline, and balanced eco-system and sustainable development as a vision. These are the areas that have been constantly followed and preached by Mahatma Gandhi in the form *Sarvodaya*, *Sarva Dharma*, Socialism, Trusteeship, *Sparsha-Bhavana*, Nature Cure, and Kindness to animals. The TGP disregards the technologies that cause harm to

the socio-political environment; it neglects the policies that transform the society and politics into gutters, causing cultural damages. The TGP strikes at the growing corporate invasion and capitalistic culture that hampers the sovereignty of the civilized communities or the nation as a whole.

The TGP puts the Gandhian values first; next only to the technological and industrial matters. It believes in the manpower, not the machine power. It suggests us to use the machines and tools as the escorts, not the commanders. It puts the onus on the people and leaves the ends to everything what the people can do or want to do.

When it comes to sustaining of Gandhian morals, the TGP wants us to be a true, hard core follower. It suggests us to use the modern technologies at minimum. In future days, the TGP could be an invaluable input in legally viable schemes and legislations like *Adverse Technology Prevention Act* that curbs the growing menace of the technology and tools that keeps our nation more and more reliable and dependent on foreign corporate bodies.

How to practise TGP in our life?

Identifying the technological needs and understanding the Gandhian ideology are the basic requirements for us to practice TCP in life. Technological innovations and tools are becoming part of our lives and have penetrated into the day-to-day activities of each one of us. Right from the early morning exercise to the night's day out, we are getting accustomed to the invasion of western pattern of life style and extensive use of technology. Talking over the mobile while walking, listening to media player while moving, carrying hand-held devices for communicating and sharing data, using computers at office and home, electronic vending machines and gaming systems, watching television

and browsing the internet are some of the technology oriented activities we are into. Furthermore, we have to accustom ourselves to the use of technology at public places like airports, bus and railway stations, community centres, malls, shopping complexes and government offices and departments. While the living style is gradually inclining to the western culture, the living conditions are driven by technology. The technology changes everyday at a rapid speed and continue to influence us with its versatile performance and workmanship. We, literate or illiterate, are forced to learn to live with the changing conditions and the process of learning keeps going for ever. Sooner, the act of learning becomes the passion, and then it becomes an act of embracing the technology. Ultimately, one has to chase for newer technologies and ends up with the loss of values that he has been speaking for and he has been known for. The mechanics and automation of such a transformation has to be understood clearly and we must draw a line of control and call for the basic and purposeful technological use. Identifying the needs for the technology and its restricted access and use alone will help us come out of this booming threat.

Practising Gandhian ideology

Out of all philosophies or ideologies, it is believed that the Gandhism or Gandhian principle is the most appropriate for a common man to ponder upon and follow as religiously as a creed or just as any other religion. The ingredients of Gandhian ideology are authentic and simple to apply in our life. It is an open protocol that could go hand-on-hand with other philosophies and can be applied on all walks of life. A Gandhian artist does a livelihood through his art works yet maintaining the values he learnt from Gandhian ideals. A Gandhian teacher takes a work in school or college yet he continues to live with Gandhian principles in practice. A Gandhian doctor could show his empathy and love towards the people coming to him yet keeping his scientific part of his

profession grow with no interventions. This kind of culmination of Gandhian ethics and other professions is a phenomenon by itself and it is really hailed as a central theme of the Techno-Gandhian Philosophy.

Summary

Practising this philosophy may be a challenging task for an ordinary man on the first look but, upon discovering the differentiation of the technological limits and Gandhian morals, it ceases to exist as a challenge. People, whether rich or poor, once they get introduced to the TGP, the simplicity of life shall be the outcome with the economic and technological hitches removed and barred from a routine life. A true Techno-Gandhian shall be honoured with lots of praise both from the field of work and from the socio-political spheres. It rightly fills up the gap that forms between the conventional Gandhian way of life and modern days' expectations of what a Gandhian can offer to the world. It is ideally suitable for both the rich and the poor.

By absorbing TGP factors into the life, both the technology and ideology take their stakes equally in one's life. As a result, we can build a society that has both the rich and the poor live happier with dignity. This would reduce the gap between the poor and rich economically and morally. The sustainability of Gandhian values cannot only be taken care of by Gandhians, politicians or by the government. Each one of us has to do it as a democratic task or a religious creed. The TGP is designed and developed with the view of understanding the challenging phase of life that involves socio-political responsibilities and impositions that occur in the lives of engineers, physicians, scientists, officers, technicians or a person of any other profession.

"When we build, let us build as if it would last forever." —John Ruskin. Particularly from an individual's perspective, it serves as just a great tool to enhance the morals and ethics one has to protect throughout his life. But, as we put a deeper understanding and exploration on the socio-political grounds, the TGP could be seen as a basic solution for many of the issues haunting in the society and politics. A true Techno-Gandhian could travel an extra mile with the sheer audacity and truthfulness in his mind to face today's evils of injustice, poverty, illiteracy and scarcity of morals in the society. With this vision and gained support of the peers, the society and the world could benefit a lot in general along the path of wisdom, truth, non-violence and peace. Conclusively putting it altogether, the policy and phenomenon of TGP has an immense message of socio-political responsibilities to be adopted to contribute to the world of the needy and the deprived in the footsteps of Mahatma Gandhi.

Part IV – Embracing Green Computing

Green Computing refers to building up of energy-efficient and renewable-energy based computing devices to reduce cost and carbon-emissions in the environment. As more and more electrical components running in a computing environment, the emission of carbon-dioxide and other green-house gases added to the atmosphere and heating up of air takes place causing disastrous environmental damage and global warming in the future. Hence, most of the IT companies are looking for setting up their infrastructure eco-friendly and invent devices that consume less energy and produce less carbon footprint.

The Techno-Gandhian Philosophy (TGP) (explained in Vol-1 of Gandhi Invoked) suggests the use of minimal technology and maximizing of human-friendly operations in the industrial world. It comes as a measure to control the growing evolution of the IT services and its widespread applications in all walks of life. The continuous development of software and hardware and vigorous consumption of heavy-load processes and resources needs to be curtailed down in order to maintain eco-friendly computing environment. The TGP consistently motivates the IT wizards to go greener and utilize the intermediate technologies to realize their inventions. It eradicates the fear and suspicion in the industrial world to align with the Gandhian principles. Above all, it gives a new dimension to Gandhism as a whole in the 21st century.

While other industries are aiming for seeking alternate energy sources like sun, water, wind, sugar and bio-fuel etc, IT industry is left with a bleak option of using the low-voltage electrical energy with reduced metallic and gaseous emanations. The manufacturing process of chipsets, motherboards and other hardware components has been re-engineered to meet the growing demand for green computing. Companies like Dell, Microsoft, Intel and National

Semiconductors have already been re-thinking on their strategies, designs and material usage for building their products in order to achieve energy efficiency and productivity. More than 5% of the world's energy is consumed by the IT and related industries and the rates are growing very rapidly doubling the energy consumption by the year 2030.

Controlling the carbon footprint

Currently the world is focusing on global warming and climate changing issues which require more comprehensive and holistic thinking on the future of the human kind. It has become imperative to materialize green computing in terms of Gandhian ideals which has also been increasingly getting attention in many parts of the world. Controlling the carbon footprint is increasingly challenging these days as global-warming, climate change effects and environmental pollution are becoming a worldwide phenomenon which require a collective functioning of governments of different countries. International organizations working on climate changing and global warming set standards for the limits for carbon presence and every nation is striving harder to meet the targets. Governments, in turn, need to set standards for production processes and manufacturing capabilities that emit less carbon and green-house gases. Such an exercise is a great maneuvering of refurbishing of existing processes and standards.

Planting of more trees around the computing environment is considered as the best way to control the carbon-dioxide pollution. Other suggestions like solar energy, creating wet lands etc. considerably reduces the atmospheric carbon-dioxide. Dell has come up with its product-recycling program and its "Plant a tree for me" campaign has made the customers feel the green effect and offset the carbon emissions. Its dual core processors are found to be energy efficient.

Technologically, many experts found that cloud computing and centralized data centers reduce the power consumption and related emissions. Solar powered cyber community center in South-Pacific region of the U.S.A is another innovative idea of promoting the 'green' campaign. Intel uses virtualization technique that uses a single, powerful base system combining the power of multiple physical systems thus reducing the overall power efficiency.

Environmental Protection Agency, USA has set the guidelines for companies to implement green computing plans and the production of energy-saving devices. It also issues an "Energy Star Logo" accreditation for those who successfully have achieved remarkable green computing efforts.

The onus of green computing is in the improvisation of processes and innovation of ideas that improves energy-conservation and environment friendly products. Every product manufactured has its own *side-effects* in the environment of its usage. Every computer manufactured contains many toxic elements such as lead, cadmium, mercury, lead being the top constituent, around 4 to 8 pounds in a piece. When computers and other electronic equipments go weary, lead makes up two fifths of all lead in landfills. Only 50% of the computers' power supplies are in good condition. "Zonbu", a California based company is the first to introduce a completely eco-responsible computer, "Zonbox", a PC which emits zero percent carbon. It consumes only 15W of power compared to 75W consumed by normal desktops.

The TGP Initiatives

Many argue that eco-damaging could be balanced by taking counter-measures. Hundred trees are planted for every tree uprooted or cut for human needs. Some others believe that the world has enough to advance to the future generations by sailing through technological advancements. But, very few realize that it is

happening at the cost of many virtues like human values, nature, and environment and of course, our whole planet.

“The Laws of Nature are changeless, unchangeable, and there are no miracles in the sense of infringement or interruption of Nature’s laws.” Gandhiji’s view on nature and its characteristics are simple, yet sophisticated. Man’s struggle with nature was effectively handled in the past; miserably faced in the modern era of science and technology. The essential needs for a comfortable human living and basic technological developments to meet the natural calamities form the Gandhian dictum of sustainability. All other experiments and research that infringes the natural environment are proven to be futile.

High speed electronic equipments and swift computers are resulted out of consistent upgradation of decade old technologies with a modification of design and material. These designs and models have been put under sustainability pressures and environmental tests meeting the green standards. Green manufacturing is another area of interest under which efficiency of the manufacturing process is scrutinized by measuring the consumption of energy, produce of waste, recyclability and re-production of flawed products. Manufacturing is an art that encompasses a beautiful design with a seamless flow creating a useful products and a bonus of by-products. Every industry has to strive for building an efficient manufacturing process model to eliminate wastages, breakages, eco-damages. Emission of hazardous gases, discharge of wastes into rivers and other human inhabitants, pollution of air and water, and more importantly the health and soundness of employees working in the manufacturing plants. An all-clean-environment has to come as an ethical obligation or standardized procedure of an industry, rather than as legal requirement or out of a force from the government bodies.

Gandhi wrote about the beauty of nature and its flawless design perfectly inhabiting the various flora and fauna besides human kind. “...one discovers in nature a unity of purpose, design and form which is equally unmistakable.” The invincible truth in nature is that it has offered us everything to live and consume whatever arises in our mind factory. Man could discover, invent and create things out of everything what is available in nature, as though it had been created for our sole purpose.

Green computing and manufacturing is a strategic choice for any company. It is a cautious approach towards putting their brains to produce something without causing hindrance to the natural environment. Green computing life cycle includes five different phases viz., Strategy, Design, Implementation, Operations and Continuous Improvements.

Today’s customers are getting more aware of the environmental issues than yesteryears’. Campaigns for energy-saving appliances, pollution-free equipments and natural products are gaining momentum these days. In the field of pharmaceuticals and body care, herbal usage is prominently in use. Inclination towards extracting raw materials from plants and animals for producing chemicals, soaps, detergents, and other consumer goods are getting popular. But, ‘going green’ is not just about embracing the nature, but fine tuning the manufacturing process.

Top level strategic decisions and policies taken in organizations can be influenced by Gandhi’s economic model and natural ways of sustaining environment. Green technology and manufacturing must be the mission statement of the organization. To meet its objectives, a company must employ persons who love nature and environment. The overall infrastructure must be developed to sustain the environment and is largely a green laboratory. A few management practices need to be transformed to deliver the ‘green’ results

which could act as cost-effective solutions in a longer run. Controlling and monitoring of crucial production systems and statistical quantification of the green-house gas' emission needs to be set up to attain the green effect. Some of the ways of achieving a measurable green house effect are:

- Simplification of infrastructure and computing environment
- Conditioning of air and room temperature by natural ways
- Promotion of eco-friendly devices and intermediate technologies
- Veto the fullest utilization of any technology which leads to moral degradation of human workforce
- Periodical check-up of body health and psychological conditions of the workforce
- Proper balance between man-machine contribution at work

In contrast to the popular belief that going green is turning to village, we must remember the words of Gandhiji, "*Return to the villages means a definite, voluntary recognition of the duty of bread labour and not it connotes.*" If it is true that human intellect leads to innovation, it is much larger truth that it is the manual work which restores the morality behind every human. In His words, "*...villages cannot retain the freedom they have enjoyed from time immemorial if they do not control the production of prime necessities of life.*"

When companies are moving their production facilities to villages for many reasons like cost cuts, increased productivity, cheaper resources etc, people of the soil has every reason to concern about their habitat and its ecosystem. This has become a serious threat in many parts of the world as the natives fear the technological invasion of their own lands. IT companies shifting their focus on

remote places is a welcome trend but how many of them are doing it “Green” remains a larger issue. Colleges, Universities, and other offices find uncultivable and unpopulated remote lands in sub-urban areas suitable for their establishments. But, it is sad that none of them give a thought on how much eco-damage it would cause in a long run in the form of global warming, depletion of ozone layer and carbon footprint.

A study shows that agricultural lands too have a considerable effect in climate changing conditions. More than half of the lands in the U.S., India, Canada, and China are suitable for agriculture and depletion of them has an adverse effect on the climatic conditions. An IT infrastructure with hundreds of computers, thousands of light bulbs, generators producing electricity of 5000KW, centralized air conditioning that spans almost an acre is sufficient enough to heats up an area of one square kilometer. Technology parks and industrial estates inhabit the remote suburban areas causing so much of damage to the environment. It is frivolous to assume that planting of trees, setting up of gardens and cooling effect inside the buildings are compensating the perilous use of high-power energy. To measure the emission and its effects, one has to focus on the release of green-house gases to the atmosphere and sudden change or disappearance of the equilibrium in ecosystem hitherto existed in those regions.

Currently, green computing includes the following as a part of Green infrastructure. Green Data Center, Virtualization, Cloud Computing, Power Optimization and Grid Computing. These technologies have been given a push by major players in both the software and hardware sectors. Microsoft, Intel, IBM etc. are constantly working on popularizing these methods of computing which significantly reduce the cost, resources and carbon emission. These

technologies basically allow us to compute, use applications and store data, share devices and processing capabilities virtually from any part of the world. With a centralised, shared networking and infrastructure, use of multi-site laboratories and high-end computers that need more energy and resources are considerably reduced. It is almost similar to get a Car-Pool for transporting five persons over a heavily-traffic high ways which otherwise would eat up a lot of fuel, time, heat, traffic congestion etc.

“We may utilise the gifts or nature just as we choose but in her books the debits are always equal to the credits.” Gandhiji studied and experienced the nature arduously well in his lifetime. His model village has everything what a human needs: Education, Health, Sanitation, Garden, Community Hall, Panchayat, Worshipping places and Recreation etc. Technology might be the only inter-linking factor among all these utilities that decides the excellence of a village. It is the degree of application of technology that acts as a factor influencing the distinction of a place or village as a model. Gandhiji was very much aware of the technologies and implications of industrial revolution. He himself was a creator of designing new tools for spinning and weaving. His *Charka* and *Khadi* was standing examples for mechanical machines, not based on electric energy. Therefore, it is important to understand the fact that technology has been used for building economy to produce more and work easily. When the extent of technology surpasses the nature’s arithmetic on ecosystem, it is only the humans who get affected by any means.

It is a common sight in the office buildings, a separate room for the servers which inhibits no person except a lot of heat and carbonized atmosphere. It is another phenomenon going on in many BPOs where a huge hall full of hundreds of computers before the human operators with headsets liberally

generating five times more of heat than the room temperature. In small and medium sized companies, the need for air-conditioning has been duly ignored and people are working at above normal room temperature environment which would cause severe health hazards and carbon footprints. Inefficient organizing of hardware spare parts result into cheaper purchasing of duplicates from local markets, which usually do not attach eco-friendly tags and are prone to increase the carbon emission. Studies reveal that heat and micro-waves caused due to excessive use of mobile causes brain damage and cancer.

What the world is achieving through constant science and technological innovations is nothing but the sudden sparkling of the brain activity in the form of ideas and thoughts. A layman would scarcely understand what the machine does and how it does. The role of human element in organizational processes is repeatedly emphasized by the Techno-Gandhian Philosophy just as what Gandhi believed about hand-spun clothing: *“The art that is in the machine-made article, appeals only to the eye; the art in Khadi appeals first to the heart and then to the eye.”*

Thinking green is not slowing down as many suppose. It is not about reinventing the wheel or reverting back to old age technologies. It is not either about low production through reduced use of raw materials or old-fashioned methodologies. It is an industry standard for efficient application and management of resources and processes by tweaking them to produce good results that lasts for longer period. It is a system that helps us to achieve maximum results with minimum cost and resources. As more and more technologies and methodologies develop every day, it has become necessary to sift them all to choose the best or a combination of the best among them. Even in the beginning of the 20th century, the industrial and manufacturing world had

seen numerous innovations and machinery out of which only very few have lasted till today. Gandhiji was quoted as saying, “*We can try to canalize scientific and economic trends, and we can’t run against them in a head-on collision.*” Through adequate and appropriate measures, we can design our ideas and plans more environment-friendly. Today’s modernization needs to be addressed carefully with an eye of scrutiny which enable us to follow what green-computing suggests.

As an end user, everyone has the responsibility to take on the green philosophy in everyday’s life. In the developed countries, 95% of the population spends around four hours a day on an average in front of their computers. This does not include the office work which is around 8 hours a day on an average. While manufactures of computers, laptops, mobiles and other electronic devices trying get their green part clearer, consumers and users are in a position to consider how well they can facilitate this revolution. There are many tips available in green websites that suggest the users to follow certain practices. Donating the old electronic devices to a charity or recycle centers will prevent the piling up of e-wastes. Turn off the switches in computers when not using them will prevent the waste of energy. Use online shopping portals to order special items like games, sports goods avoiding transportation that promotes carbon emission. But recycled products and look for energy-star label. Promote green companies and avoid products that come up with fake-claims on their eco-friendliness.

The third International Green Computing Conference to be held in June, 2012 to provide a forum for presenting and discussing innovative research on a broad range of topics on sustainable and energy-efficient computing, computing for a sustainable planet. Many issues related to green computing like energy

efficiency, energy harvesting, renewable energy, smart buildings etc. are being discussed to develop a strategic solutions for greening the planet. These issues are far from getting materialized and are yet to become industry savvy practices. Hence, green computing must be seen as a revolutionary approach towards a clean environment and future of the IT industry. It is not just a cost-effective, high-productive methodology for manufacturing processes but also a morally viable humanistic approach that brings a new dimension in the corporate social responsibility. Whereas the Techno-Gandhian principles allow us to follow minimum use of technology for production and day-to-day use, Green Computing provides means to sustainable environment. The TGP is a way of living and a perfection of human approach towards nature and environment; green computing enables development of newer technologies but with a need for guarding the eco-system. The unification of these two concepts will be a grandeur accomplishment in the coming days. The initiatives taken by organizations in this regard have tremendous support from environmental activists and Gandhians worldwide. A time has come to recognize the conscientious merger of Gandhian ideals with the technological trends. Both could co-exist supplementing each other. Without either of them going together, survival and sustaining our planet earth might be stressful, distressing and commotional.

Part V – Annexure

TGP - Answers to Frequently Asked Questions

Students and friends of the center continue to misconstrue the concept of the Techno-Gandhian Philosophy (TGP) and pose various questions on what premises it holds good and on how to put it in practice. And, it continues... It continues like a persistent issue around many IT fellows about the possibility of the co-existence of Gandhi and his philosophy amid much modernized, techno-savvy world. They also come out with a lot of cynical issues on whether technology is inclusive and an essential ingredient while addressing socio-political evils. I have answered some of them and clarify here on parts of the theory and its practical realization.

Q. How is the Techno-Gandhian Philosophy fit in the spectrum of Gandhian ideology?

A. It is based on the very fundamental fact that technology itself is not a pure form of science without social, environmental or political conventions. Technology will never be too technical or scientific to assist the human kind without assisting him in addressing social, environmental and political problems. As Gandhiji noted in his infamous “Seven Sins”, Science without Humanity is a sin. So as technology without social or political order is. Conversely, today it is increasingly difficult to spread the word of peace and harmony, nonviolence and diplomacy without the use of computers and the exchange of other tools and technologies as a token of friendship and relationship.

Secondly, whilst the moral fiber dies out of our lives and civilization these days, there comes the very serious issue of sustainability of our values which needs to be tackled through a much proven code of conduct such as the one

preached by Gandhiji. His vision of nonviolent society, human rights and justice, freedom out of self-sacrifice and Swadeshi economics could be seen as the right choice to traverse to and fro in the journey of life.

Thirdly, it is the essentiality of the existence of technology that keeps the Gandhian spirit widespread and modern. The fresh outlook on what Gandhiji had said or wrote, though pervasive, has an obstructive criticism and suspicion from today's westernized societies and modernized youth. But, it must be noted that technology too is contributing to the growth of Gandhism and its relevance. Precisely, there needed an essentiality of Gandhi who gave us a new world order in using the technology. As we get along with the up-to-date technology in these days, His use of traditional technologies still do exist somewhere in the world which needs attention and care.

And lastly, the TGP must be experienced and inhaled deeply into one's mind and soul so as to realize its full potential and wondrous connections emerging out of it. It is not a mere hypothetical dictum that simply connect two different ends viz. technology and Gandhian philosophy but a sincere attempt to comprehend the both in social and political spectrum. It could spread across that gamut by reaching the areas hitherto unexplored and taunted to be testified, bringing us to the life full of consciousness and conscience behind it.

Q: I am working in a multi-national company. I am very much interested in Gandhi and his principles. I always try to follow them. Will TGP appropriate for me? Do I have to work more on the social service or should I have to leave my current job?

A: The main theme of the TGP lies in "adherence to Gandhi's principles", not in technology. A follower of TGP will have the doors open to play a socio-political role and that must be the primary objective of anyone who wishes to

adopt it. In today's socio-political activities, technology has a remarkable place and the same is true for a Techno-Gandhian who has attained his goal. How much of social work and professional work you do is left with the available resources and capacity. But a Techno-Gandhian has the right to use technology at minimum levels. He shall not be excluded in a techno-world and techno-driven world on the grounds of following Gandhi's principles.

Q: I assume that TGP is violating the ground rules of a regular Gandhian follower. Is it right?

A: No. TGP is not a violation, but an extension, to the customary Gandhian standards. It is formulated after studying and exploring a large utopia of regular Gandhian activities and their accomplishments in the past. A regular Gandhian follower will have his focus on the essentials of Mahatma Gandhi's ideals such as his 11 vows and work towards three different goals such as social reform, social activism and social work. It is a life-time contribution for a person. But, TGP is even larger than this, extended further to take into account Gandhi's "Seven Social Sins". A businessman or a scientist could hope for a socio-political role as the last of his objectives besides serving his professional career.

Indeed, a TGP follower must have to be more careful in keeping his Gandhian stance at the right levels to accomplish his final objective than a regular Gandhian for whom his goal is in a perplexed state of "either it happens or not" OR "do or die" situation.

Q: I am running my family business and upon practicing TGP, do I get a socio-political role?

A: You must take TGP along with you in the social spectrum and highlight the best aspects of yourself and your plans for the cause of people. You shall be given due attention for practicing TGP. You must show the signs of your

readiness for assuming roles to serve the people. You should respect the socio-political role more than your business. And for this to realize, personally, you must have other alternatives to take care of your business intermittently.

Q: Assuming that I have a role on-hand in my socio-political environment and it continues for a certain period, shall I resume back to my profession later?

A: Obtaining a suitable role in socio-political environment is the main goal of a follower of TGP. It is very important and crucial to maintain TGP during the tenure of the role. One must have to strive to follow TGP during the job with even more conscience and care. That is the greatness of being a follower of TGP. Going back to profession is least important and less favored.

Techno-Gandhian Forum

A new forum for exploring Techno-Gandhian Philosophy is currently unveiled. As a professional or technician you need not have to distance yourself from Mahatma Gandhi's ideas and methods any more. Become a member and share your views. [Join Now!](#)

Mahatma Gandhi Community Forum

GandhiTopia.Org is a meeting place for students, scholars, activists and institutions on the web. It provides news, views, media, events and research on Mahatma Gandhi, Peace and Nonviolence. [Join Now!](#)



BB Systems (CIT-GPNP)

Registered Office:

55/208, V.O.C. Nagar, T.P.Pattinam,

Mettur Dam – 636 402,

Tamil Nadu, India

☎: +91 99414 34374

✉: bbmurali_2000@yahoo.com, citgpn@gmail.com

🌐: <http://bbsystems-citgpn.web.com>

Printed in India

© BB Systems, CIT-GPNP All rights reserved