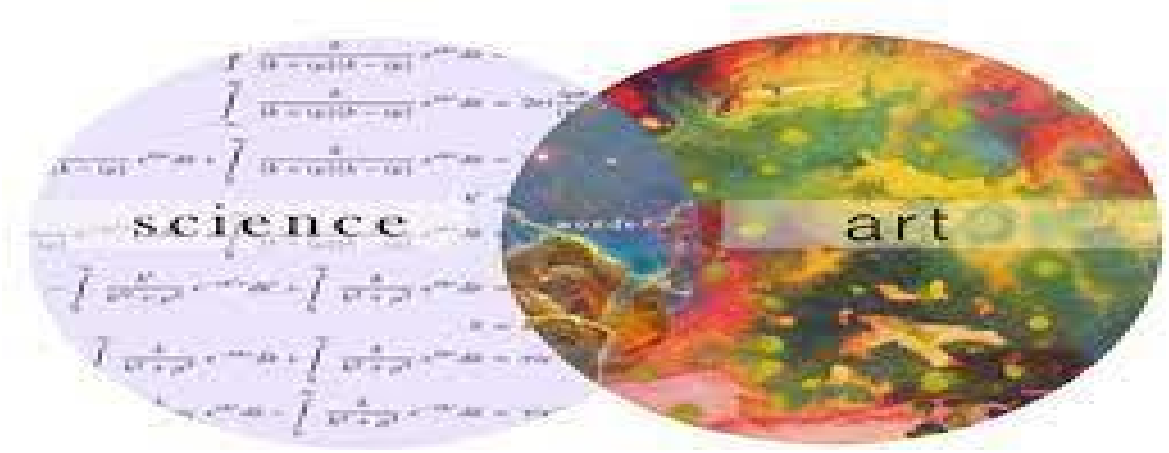
Roots of Revival: Reimagining the System of Thinking



"**The end of science is not to prove a theory**, **but to improve mankind**" ---Manly P. Hall

Have you ever been questioned with imagination like---
Growth, Innovation and the pace of life from cells and cities and corporations; Are they sustainable?
Are we made of matter? Or, an electromagnetic phenomenon?
Are cities and companies just very large organisms satisfying the laws of biology?
In this white paper I will be discussing an alternative way of thinking to adapt to sustainability and how we can internalize it in the mental cognition level to become a value in the ecosystem. Our approach should follow a path where we could get rid of conventional thinking about technology and go beyond the metaphoric ideological state by transcending the technology.

Our standpoint: First, we need to understand where do we stand by our belief system? Why do we need sustainable technology education and awareness spread more than any other time? To address these questions, I would like to take you through some facts and figures.
Sustainability has four pillars: Economy, Social, Environment and Human. We are composed of five basic elements: Earth, Air, Water, Fire and Space. It is necessary to treat those elements in such a way so that we would be able to survive in Earth space as a species. It is reported in 2019, Air pollution contributes to 9% of deaths globally – this varies from 2% to 15% by country. Some 80 per cent of the world's wastewater is dumped—largely untreated—back into the environment, polluting rivers, lakes, and oceans. This widespread problem of water pollution is jeopardizing our health. Unsafe water kills more people each year than war and all other forms of violence combined. In Australia, some 80,000 sites are now estimated to suffer from soil contamination. China has categorized 16 per cent of all its soils — and 19 per cent of its agricultural soils — as polluted. There are approximately 3 million potentially polluted sites in the European Economic Area and the West Balkans. In the United States, 1,300 sites appear on that country's Superfund National Priorities List of pollution hot spots.

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Now I believe I am able to create a sense of our non-deterministic way of living and why should we reconcile the path of rationalism--human way.

Image Courtesy: freepik.com

What does it mean by Sustainability and Technology?
Sustainability means meeting our own needs without compromising the ability of future generations to meet their own needs. If we consider a certain ecosystem then sustainability would address the co-existential capability of individual components along with the whole. We could achieve resiliency when we think about the system as a whole and understand the interdependency of its building blocks. So, sustainability is the ability to exist constantly.

Image Courtesy: **bermudasun.bm**

Now when it comes to technology, I would like to describe it in two different dialects:

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The Art of Science: We are technology. Each organism uses technology as intelligence and tools as a metaphor that is there in nature. When we talk about Artificial Intelligence, we design it by decoding the complex nature of our brain. When we see a bird entwining its nest, the scientific methodology being used is defined by technology. So, it's something with a complex pattern, woven fabric that makes a simple metaphoric existence in the vast expanse of nature. It's within.

An ecofeminism act: Image Courtesy niche-canada.org

The Science of Art: Sustainable technology means improving our social and environmental footprint at every stage of the product life, from raw material extraction to end of life.

Anatomy

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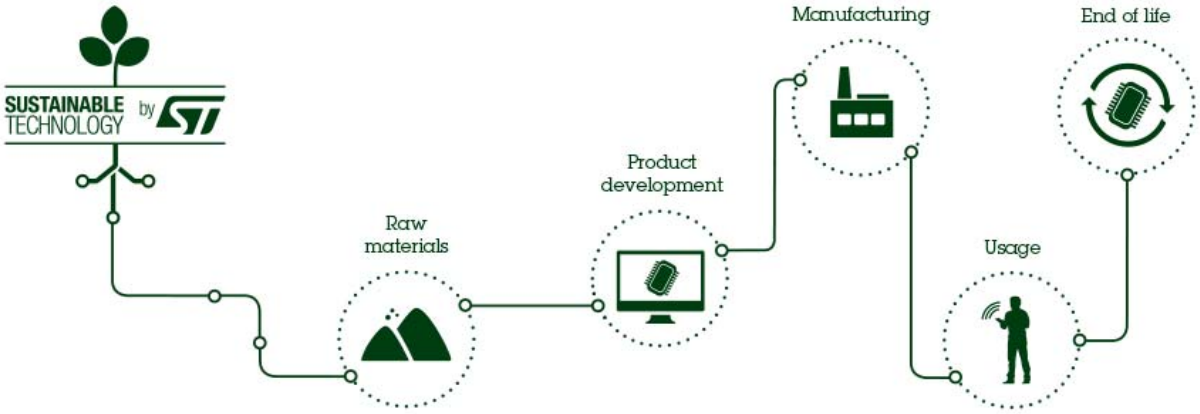

- **Raw Materials:** Our responsibility begins with the raw materials we use, which are all sourced in line with the latest environmental and social guidelines.
- **Product Development:** By adopting an eco-design approach, we carefully consider the impact of our future products on our planet's resources.
- **Manufacturing:** We reduce the impact of our manufacturing activities on resources and local communities while building a resilient supply chain.
- **Usage:** We aim to create innovative devices that have a positive impact on our planet, business and people's lives.
- **End of Life:** We strive to minimize the waste produced when disposing of our devices and facilitate recycling for our customers and end-users.

System Thinking:

The responsible characteristics of a product are linked to the environmental or social domain:

Power-efficient device: Consume less electricity

Low Carbon device: Reducing the manufacturing footprint

Planet-friendly application: Enabling a green solution

Human-welfare application: Innovation for people's well-being

Sustainability integrated with RE innovation:

Highlighting the opportunities in five different verticals---

Emissions and Energy, Campus Operations, Nature and Ecosystem, Health and Well-being, Culture and Learning

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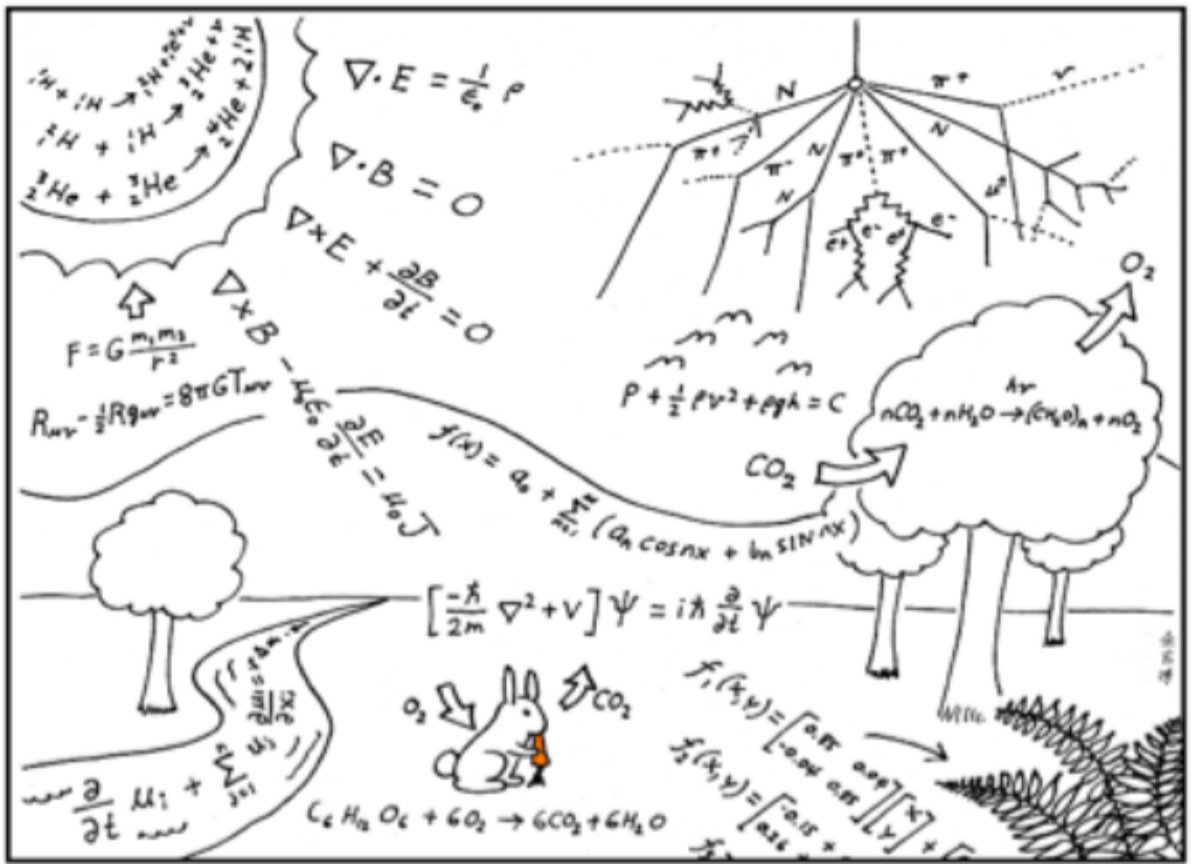

Image Courtesy: Scale book, written by Jeoffrey West

Key take-ways:

Now I will mention 5 different application areas of alternate energy resources.

Agriculture:

---Technology (mobile application) used to tackle the devastating effect of crop failures and to become more climate-resilient

---Low-cost cold storage facility, free electric facility, Solar water pump installation

---Different models of cultivation:

Permaculture for eco-villages

Hyper-local urban farming for eco-cities

Use of renewable energy in rural remote areas of many developing countries could help farmers to increase agricultural productivity as well as to earn more money by value addition to their

produce (e.g. controlled drying of fruits and vegetables, cheese production from milk, off-seasonal production of fruits and vegetables with irrigation, etc.)

The potential for using REs in the agricultural value chain is plentiful and often has many advantages compared to conventional technologies like diesel generators.

A high level of integration of RE into an agricultural process can lead to high efficiencies, low environmental impact and low production costs.

Image Courtesy: bbc.co.uk

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Energy source	Converstion to	Most applied technologies and applications	Remarks
Solar energy	• Heat • Mechanical energy • Electricity	• Photovoltaic (PV) driven pumps for irrigation • Crops, drying of fruits / spices, ice making and cold storage (through absorption or heat driven refrigeration)	• PV systems are limited to agricultural activities that require little power input only. • FAO provides an inventory of PV applications
Wind energy	• Mechanical energy • Electricity	• Direct use: grinder, mills, mechanical water pumps • Electrical water pumps	Option for energy intensive processing activities
Micro hydro energy	• Mechanical energy • Electricity	• Direct use: mill, grinder • Electrical motor for processing	Option for energy intensive processing activities
Biomass energy	• Heat • Electricity • Liquied Biofuels • Biogas	• Dryer (fruits, herbs,spices) • Fermenter (tea) • Combustion motor or electric motor (fuels like ethanol and biodiesel for transportation) • Anaerobic digester: biogas for lighting, cooking and heating and industrial biogas for decentralized electricity	• Biomass is organic material used to generate electricity, to produce heat or biofuels for transportation. • Bioenergy is derived from wood, agricultural crops, residues, animal by-products, agro-industrial by-products.
Hybrid power systems	Combine fossil fuel-fired generators with wind or solar electrical power	• Wind/PV Hybrid • Wind/Diesel Hybrid(s) • Used in the food-processing sector (grinding of corn, wheat and millet, and milling of grain-hulling paddy)	• Together, they provide a more reliable and cost effective power system than is possible with either wind, solar or diesel alone. • An emerging technology.

Waste Management:

One of the biggest innovations coming to the waste management industry is the ability to turn waste into actual power. Instead of sitting in a landfill, certain types of waste can simply be converted into energy. New machinery known as ‘digesters’ can take the waste and the biogas it produces and turn it into energy that can be used on site. This kind of technology can be used on a variety of waste, including food, animal waste, agricultural leftovers, and more.

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Image Courtesy: cntraveller.com

Zero-Carbon Home:

Each year, buildings, both residential and commercial, account for almost 40% of all energy-related carbon dioxide emissions globally.

Key Steps:

---**Energy Audits:** Hire a certified energy advisor to conduct an energy audit of your home.

---**Research Incentives:** There are several government incentives for people who are planning to build a new zero-carbon home or retrofit an existing home to move towards the zero-carbon ideal.

---**Monitor your Energy use:** It is important to monitor your home's energy use to ensure it is operating as expected. By doing this, you will be able to verify that the home is genuinely producing as much energy as it is consuming.

School: This is important to identify how educational institutes can drive sustainability awareness program and be a change maker to unleash the wealth of society. We could develop several agenda and curriculum to apply those ideas and intuition in reality.

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Organization: Implication of Blockchain technology to alleviate poverty

Since its conception, blockchain technology has become widely synonymous with the cryptocurrency Bitcoin. However, the utility of blockchain comes not necessarily from its manifestation in online currency but the nature of its security and accessibility. These two features are what make blockchain technology and poverty so interlinked. It holds promise as a secure and equalizing tool for the world's poorest and most rural. Significant to alleviating poverty, blockchain technology's secure nature allows for it to be used as a financial service platform. By using cryptocurrencies or internet-money, individuals in financially insecure nations can take steps to avoid financial vulnerabilities, such as fraud or hyperinflation. Blockchain's financial services allow for mass participation in the most remote parts of the world. A wide range of business owners can build financial credibility.

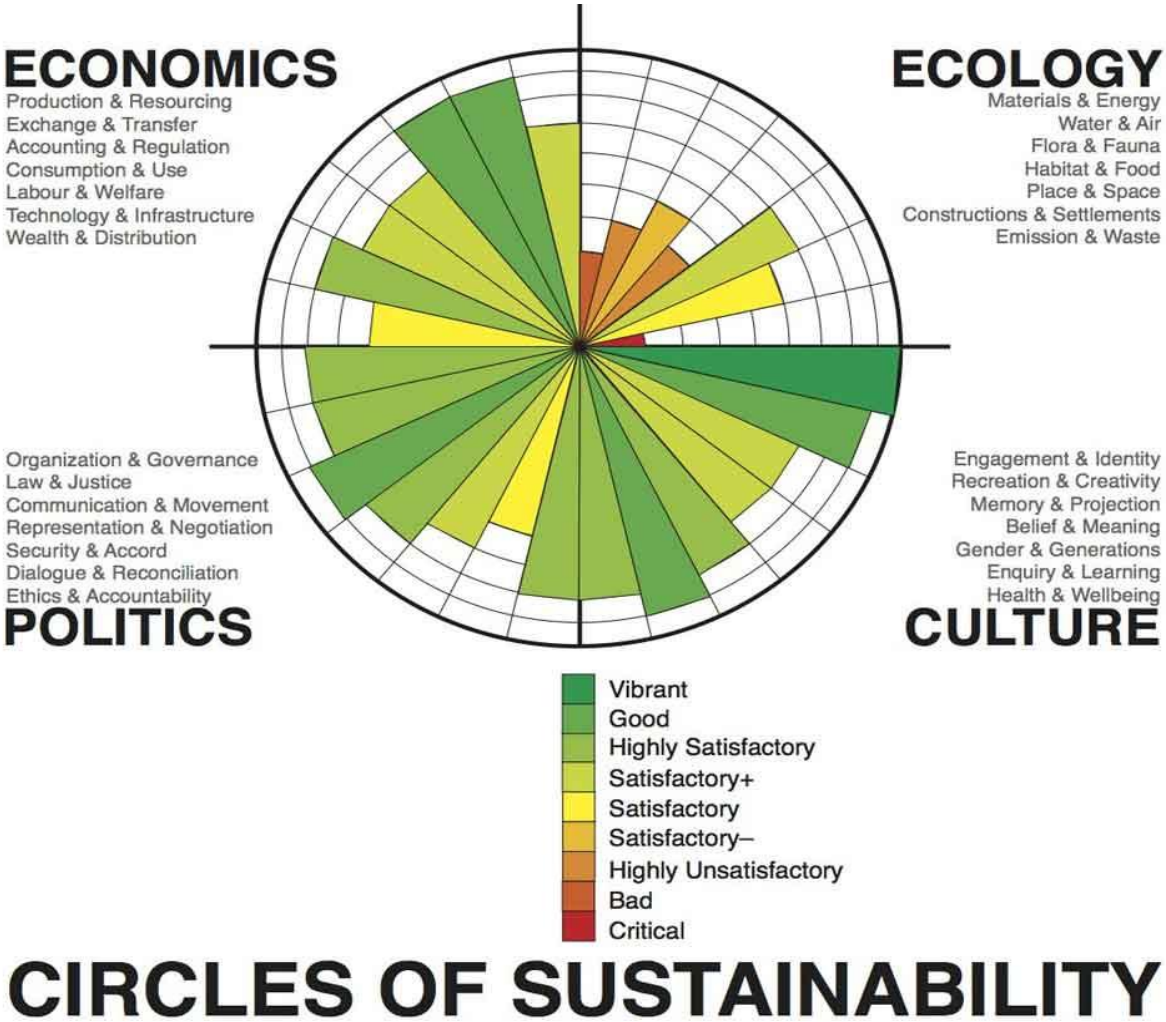

Image Courtesy :
upload.wikimedia.org/wikipedia/commons/9/96/Circles_of_Sustainability_image_(assessment_-_Melbourne_2011).jpg

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From the above given analysis we can understand how critical, bad and highly unsatisfactory when it comes to Ecological factors. As Einstein said--"Education is not learning facts but the training of the mind to think". We lost our track many centuries back. We need to rethink education and work for the future. The fourth industrial revolution is not about technology and business but it's all about humanity and society. We will have to integrate and connect the different components of intelligence such as: Visual Intelligence, Kinetic Intelligence, Listening Intelligence or Social Intelligence to address the physical, metaphysical, astral and causal ecosystem of existence. That's where Kerdashev's Type-0 to Type-7 civilization comes into the picture. And, Liberal Arts is the root of that journey.

Image Courtesy: **thewetpaintbrush.com**

"It's technology married with liberal arts, married with the humanities, that yields us the results that make our heart sing." ---***Steve Jobs***

Education is the manifestation of perfection already within us. To create a more realistic sense, I would say it's defined by the degree of intimacy with surroundings. Einstein once said, "Education is what remains after one has forgotten what one has learned in school". So, it needs

to be internalized and it's not about learning the facts through informational knowledge. It's all about train your mind to think; think independently. When we talk about innovation, we are taught to learn from different segments of a notion, and then merge it or recreate it to serve a purposeful or meaningful action to the society and environment. And, it's not an investment if it destroys the planet. Since the dawn of the industrial age, we have seen a cultural, ethical and moral degradation of human consciousness level. We cut the trees, make papers out of it, and print an advertisement at the backside of the notebook "Save the Earth". We train scientific minds to make atomic or nuclear bombs to serve warfare purposes. We burn fossil fuel, we make chemical fertilizer, toxic pesticides, genetically modified seeds and other harmful substances which make no sense to human and natural evolution processes.

Image Courtesy: modernschoolec.com

The idea of this piece of writing is to give a glimpse of revival thought process going beyond orthodox ideologies. To create a sense we need to start our journey from the root level. The universe is made out of five basic elements: Air, Water, Fire, Earth and Space. We need to learn the coordination between these elements and how to apply a pearl of indigenous wisdom to balance the human biological system. To understand the connectedness with nature including all living organisms and nonliving identities, we need to think beyond the gross physical level. We have three types of body: Gross Body, Astral Body and Causal Body. We have five different components of mind: manas, ahamkara, Chitta, buddhi(intellect) and atman. We have three kinds of intelligence: Intelligent Quotient(20%), Emotional Intelligence(80%) and Spiritual Intelligence(transcendental). Nikola Tesla once said, "If you want to find the secrets of the universe, think in terms of energy, frequency and vibration". So, that gives us a very basic level understanding of our existence.

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Image Courtesy: nathab.com

In the dawn of the fourth industrial revolution, we need to build the platform to sustain that change and growth as it's all about human and society. And we know education is the most powerful instrument to change the world. Through the vision of liberal arts, we will be trying to manifest that intellectual thought-process in ground reality.

So, what is Liberal Arts? From an academic and degree-centric point of view--- Liberal arts generally covers four areas: the natural sciences, social sciences, arts, and humanities. Its central academic disciplines include physics, chemistry, biology, philosophy, logic, linguistics, literature, history, political science, sociology, psychology, and mathematics. The main goal of liberal art education is to find the interconnected network between everything and experience the true purpose of existence. It defines the art of science the science of art in a subjective universe and objective universe respectively. We segregate liberal arts in two broad disciplines:

The **Trivium**: three arts of language pertaining to the mind.

A. Logic: Art of thinking

B. Grammar: Art of inventing and combining symbols

C. Rhetoric: Art of communication

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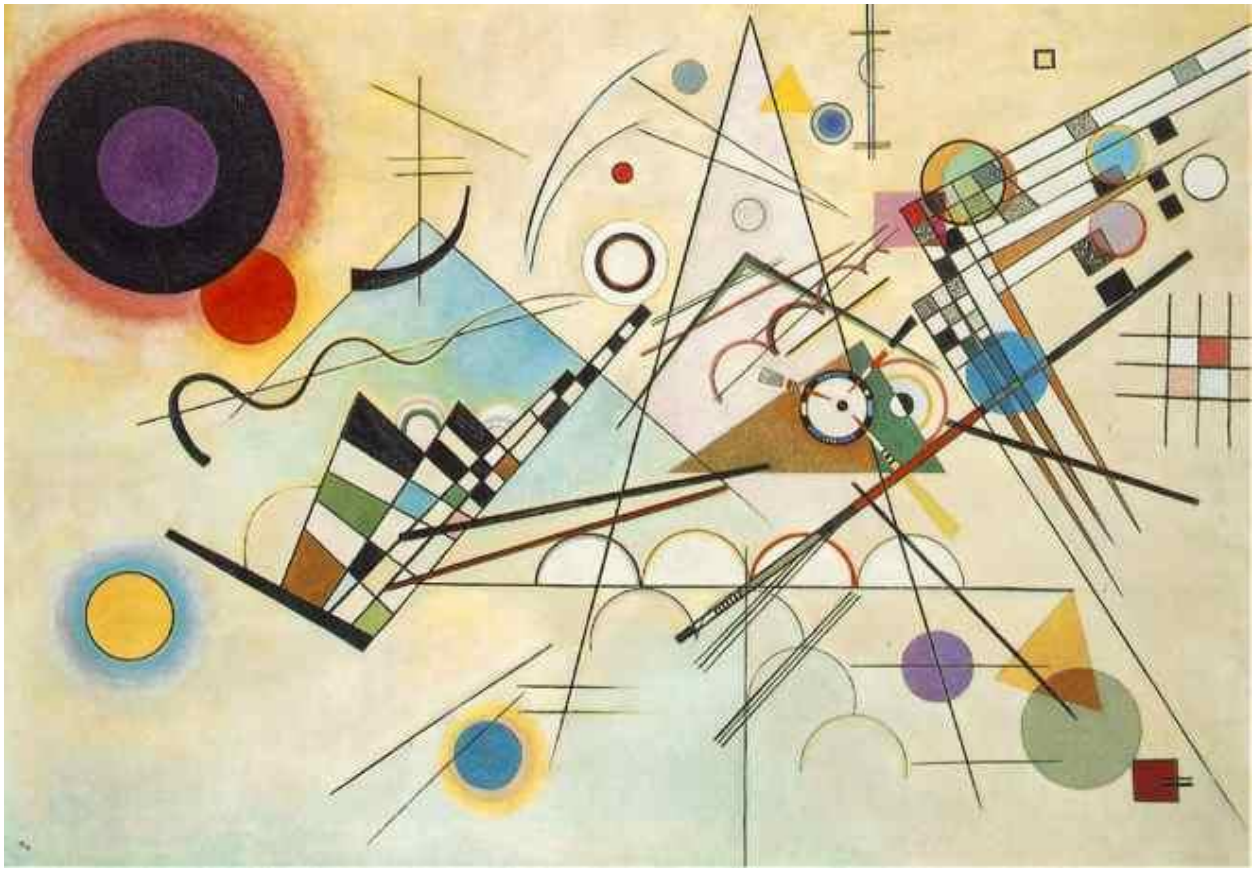

Composition 8: by Russian artist **Wassily Kandinsky**(1923)

The **Quadrivium**: four arts of a quantity pertaining to the matter.

D. Arithmetic: Theory of number

E. Music: Application of the theory of number

F. Geometry: Theory of Space

G. Astronomy: Application of the theory of space

Start off with the learning paradigm of childhood. We sense the objective universe through biological organs first; then it creates an imprint in the brain--called memory. After 5-6 years, we start the journey through a subjective understanding of those objects. Then we learn the science or correlation among all living and non-living identities. Here, the mind develops a certain degree based on the experience we gather and how it's interpreted. Here, we will be learning how to see the world and we would get to know that the problem can't be solved with the same degree of intelligence from which it was created.

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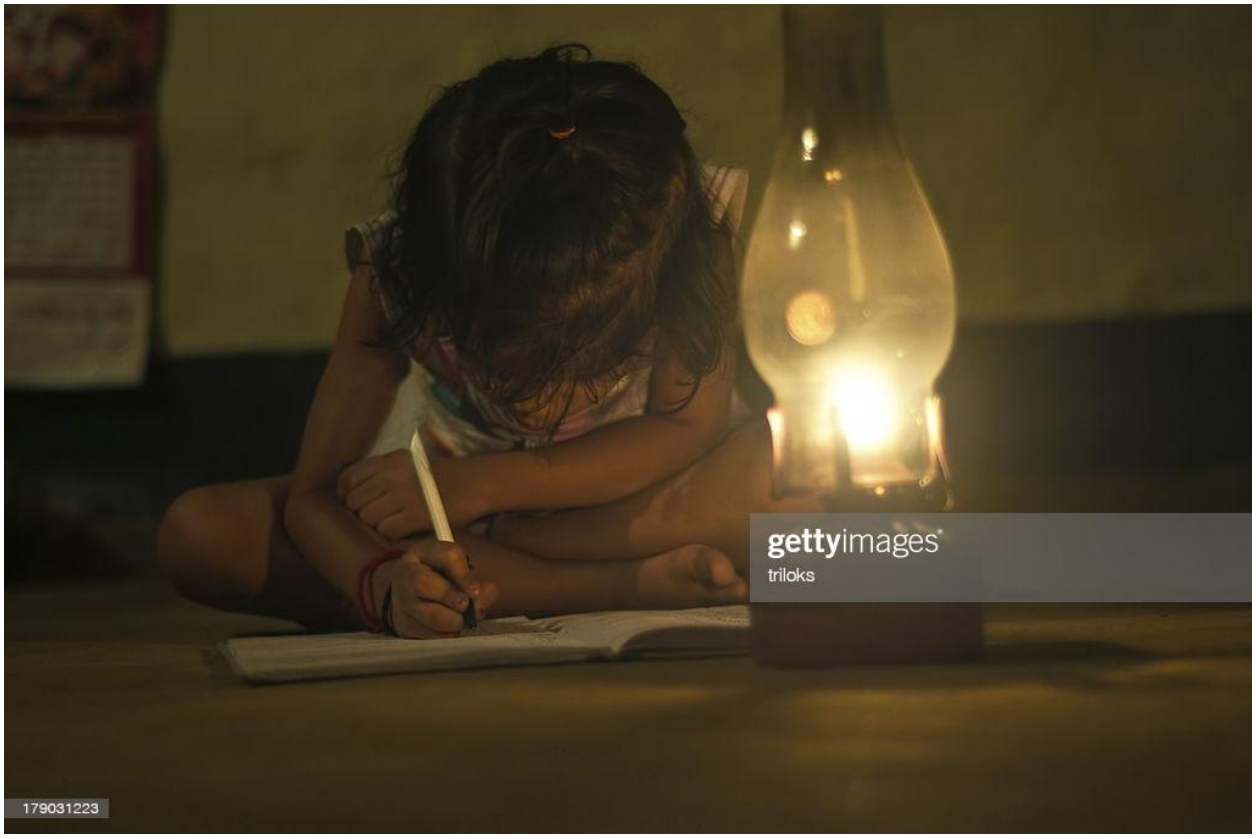

Image Courtesy: unescap.org

Here I am gonna give you three system thinking approaches with examples through which I tried to touch the ground level of reality:

1. **Ecofeminism**: It's a movement in the mental cognitive world rather in a metaphysical world, where we find the resemblance of nature in womanhood. It holds the truth, preserves beauty. So, this is our basic responsibility to protect the biodiversity through the Agriculture process and keep the balance of the ecosystem. This realisation can be shared through a community development framework. Because of having less knowledge and support, farmers have no idea on the negative impact of burning straws and using chemical fertilizer or pesticides on crops. It's recommended to study Vandana Shiva's work in the Agriculture movement.

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2. **Street-art**: This form of non-formal education can be included in the school-level formal academic curriculum so that children and teenagers can express their thoughts through one strong and vibrant medium of creativity. It can be considered as a strong component of eco-cities and eco-villages. Society would be aware through the visual medium of art and culture.

3. **River-centric civilization**: By rejuvenating the ecosystem and environment of a river we could create a sustainable platform for all living beings. Considering Blue economy, job creation, youth development and other significant indicators we can connect the dots and build the bridges. This is the way to return to the prosperous ancient future.

Conclusion: In short, I would say technology is a gift. And, it would define our future and how we use it today. We need to find the intersection of sustainability and technology to serve the purpose for humanity. I would remind you of the key solution to achieve this great agenda, which is the Learning Society. In APJ Abdul Kalam's 'India 2020' book, you would get introduced to the concept of Knowledge Society, a self-sustaining framework for the next millennial.

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“We are light-workers”---Somnath Banerjee