



Inspiring Futures



*Invoking Sustainability  
Inspiring Futures*

# XUB SUSTAINABILITY SUMMIT 2018



**SUSTAINABILITY DISRUPTIONS  
FOR MITIGATING  
GLOBAL RISKS**

**Fusions of Sustainability**

**FEBRUARY 9-10, 2018**

ORGANIZED BY

**XAVIER SCHOOL OF SUSTAINABILITY (XSoS)  
XAVIER UNIVERSITY BHUBANESWAR (XUB)**



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## **Prof. Dr. Fr. Paul Fernandes, S.J**

Vice Chancellor, Xavier University Bhubaneswar (XUB) and  
Director, Xavier Institute of Management Bhubaneswar (XIMB)

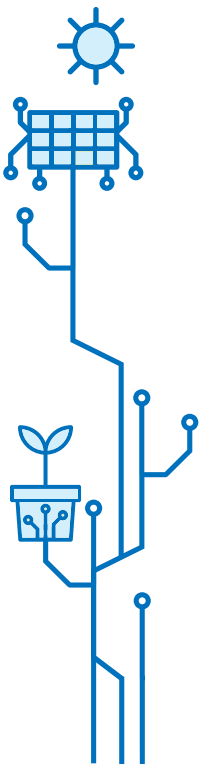
### *Message*

It is with great pleasure that I welcome you to Xavier University Bhubaneswar for the third Sustainability Summit organised by Xavier School of Sustainability. The theme of this year's Summit is "Sustainability Disruptions: For Mitigating Global Risks".

Xavier University Bhubaneswar is the first Jesuit University in India established with the mission of 'enabling people to lead extraordinary lives, and be the light for the world.' As part of this mission, we have established the Xavier School of Sustainability as we believe in addressing ecological and sustainability concerns necessary for people to live extraordinary lives.

The world today is witnessing unprecedented climate change and global warming leading to social, cultural, economic and political crisis and disturbances and above all technology is radically transforming our world and accelerating the risks we face today. The solution to mitigate such risks can be found in the positive and path breaking disruptions caused by innovations built on the foundations of sustainability that promote values of symbiotic and sustainable living, minimal natural resource use, mitigating biodiversity stress, designing resilient systems, and bridging societal inequalities. It is against this backdrop that XUB Sustainability Summit 2018 with the theme, "Sustainability Disruptions for Mitigating Global Risks" has been planned. This event draws together participants who represent educational institutions, business corporations, public sector, UN agencies, and national and international civil society organisations. We hope, your participation in this Summit will be rewarding and enriching.

I would like to express my personal appreciation and gratitude to our sponsors, alumni and friends for their continued support, as well as to our students, faculty and staff, whose work and dedication have provided significant contributions to the school's continuing growth and success. I am also grateful to the Strategic Advisory Board Members of XSoS for their continued direction, guidance and support. While complementing our colleagues for all their preparation and hard work to ensure a stimulating and enjoyable experience for us all I wish the Summit all success. I wish the delegates coming from different parts of the world a pleasant stay in our campus. With this, I welcome you all and await your participation in the Summit and make this a memorable event and a grand success.





**Prof. Fr. E. A. Augustine, S.J.,**  
Registrar, XUB

## Message

Steering the Sustainability Summits in the past has been a major milestone in the history of Xavier University Bhubaneswar (XUB) as the University has made a commitment to sustainability in different areas especially in sustainable agriculture, maintaining a green campus, integrating clean energy practices, environmental protection, and resource conservation in all appropriate aspects our operations thereby reducing the environmental impacts.

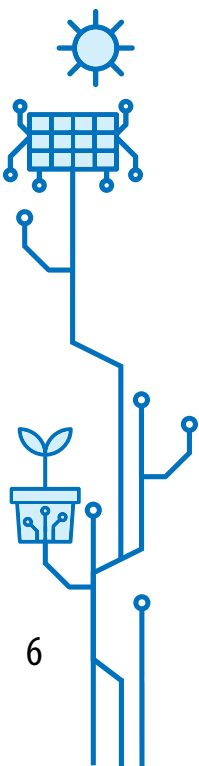
I am happy to know that the theme for the third XUB Sustainability Summit to be held on 9th and 10th February 2018 is "Sustainability Disruptions for Mitigating Global Risks". This theme is very relevant as the Summit will generate new ideas and actions founded on the Principles of Sustainability to mitigate Global Risk.

Xavier School of Sustainability (XSoS) at XUB has been spearheading a social movement to mainstream sustainability thinking and action among the Academia, Business Organizations, UN Agencies, Government Departments and Civil Society. No wonder then that our Sustainability Management Program has been ranked 95th best program in the global ranking by Eduniversal, France.

I am happy to know that distinguished thinkers and practitioners will be discussing various issues related to the 3 tracks/themes identified for this Summit. I am sure your participation will enrich the Summit and help XSoS/XUB to identify solutions for mitigating global risk.

On behalf of XUB, I welcome you all wholeheartedly to participate in this important event. Wish you all a happy stay and a meaningful deliberation and enjoyable experience at our University.

With Best Wishes God's blessings.





## Prof. S. Peppin, PhD.

Dean

Xavier School of Sustainability (XSoS)

Xavier University Bhubaneswar

### Message

In the wake of 'Fourth Industrial Revolution' (4IR), the world is witnessing unprecedented disruptions leading to environmental, economic, geopolitical, societal and technological imbalances and risks. Technology is radically transforming our world and shaping the risks we face today. The threat of Artificial Intelligence (AI) and Robotics replacing humans is looming large. Though such threats seem alarming, there is still hope for the humanity and the planet.

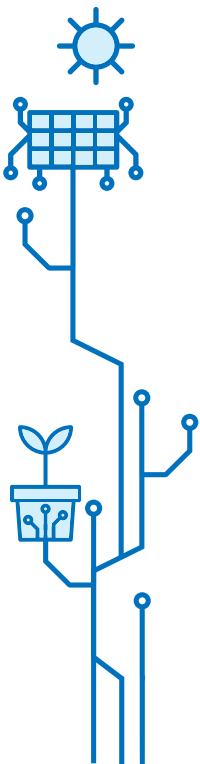
The hope can be found in the disruptions caused by societal and technological innovations built on the foundations of sustainability that promote values of symbiotic and sustainable living, minimal natural resource use, mitigating biodiversity stress, designing resilient systems, and bridging societal inequalities.

Educational institutions play a significant role in promoting newer sustainability based values, resource efficient models and technological advances. Together, these actions shall take pre-eminence in mitigating emerging global risks as transformational change in the society can happen only through spreading knowledge, information and sustainability oriented values among citizens and especially the younger generation.

Besides, involvement of stakeholders including the state, business corporations, educational institutions, international and bilateral development agencies, and civil society is equally essential in order to mitigate the risks caused by the technologies of the 4IR and create a sustainable world connecting People, Planet, Profit, Prosperity and Peace.

Against this background, taking forward the Jesuit values of environmental justice and peace, Xavier School of Sustainability (XSoS), Xavier University Bhubaneswar (XUB) is organising its' third sustainability summit with the theme "Sustainability Disruptions for Mitigating Global Risks." The overwhelming response this Summit has received is indicative of the fact that the commitment to promote sustainability disruptions is growing and spreading.

On behalf of Xavier School of Sustainability, XUB, I welcome you all to this historic learning event and experience and celebrate the fusions of sustainability disruptions.









**Mr. Kamal Bali**  
President & Managing Director  
Volvo Group India

## Message

I am both delighted as well as excited to be part of the XUB Sustainability Summit 2018, simply because sustainability is clearly poised to be the bedrock of our futures.

In the recent times, “Sustainability” has become a buzzword. Although the frequency of its use has increased multi-fold, the concept is hardly new. The concept is very straightforward: everything you do must pass the three-way test of being economically viable, socially inclusive and environmentally friendly. You cannot maintain the quality and value for long without embracing sustainability.

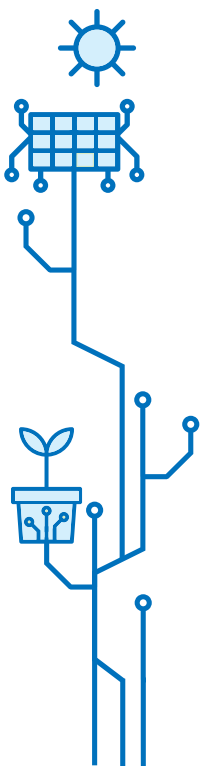
When you are able to align environmental, societal and economic concerns with one lens, you can accelerate change that helps you progress. Organizations are in a “rethink” mode and adapting to new ways of working. They are focusing on the dearth of natural resources and increasing costs that pertain to this scarcity. Organizations are adopting “circular resource management” where the focus is on simple conservation, meticulous use, and mindful reuse. The indications from all quarters suggest that the efforts of these actions are going to bring changes that are exponential for both business and the society.

For me, sustainability translates to prosperity in every sense. At Volvo Group, we drive prosperity through transport solutions for our stakeholders, and for society at large. Our contribution towards

Corporate Social Responsibility (CSR) and sustainability are innate to our culture and values. Our sustainability goals broadly encompass our value chain activities, sustainable transport solutions and our role in society. These focus areas have made us resilient and capacitated to mitigate risks.

As a signatory to the United Nations (UN) Global Compact, a partner in the WWF Climate Savers program, and ardent supporters of the UN 2030 Agenda for Sustainable Development, we keep a track of global trends and challenges, international norms of responsible business behavior and stakeholder expectations when developing our work.

I extend my warm wishes to the honourable Vice Chancellor, Dean, Staff, and Students of Xavier Institute of Management to continue this journey of excellence in Sustainability.





### **Prof. Farrokh Mistree**

L.A. Comp Chair and Professor  
University of Oklahoma, Norman,  
Oklahoma, USA

*He holds the L. A. Comp Chair in the School of Aerospace and Mechanical Engineering at the University of Oklahoma in Norman, Oklahoma. His passion is to have fun in helping motivated and competent people identify and achieve their dreams. Farrokh believes that being a professor is the best job in the world and the only think better than that is to be married to one. His wife Professor Janet K. Allen and Farrokh co-direct the Systems Realization Laboratory at OU. Their research focus is on collaboratively defining the emerging frontier for the “intelligent” decision-based realization of complex (cyber-physical-social) systems when the computational models are incomplete and inaccurate. Farrokh has co-authored two textbooks, one monograph and more than 400 technical papers dealing with the design of materials, mechanical, thermal and structural systems; ships and aircraft; engineered supply networks. Farrokh is a Fellow of ASME and an Associate Fellow of AIAA.*

## *Message*

### **Career Sustaining Competencies For Managing Disruptions In A Digitized World**

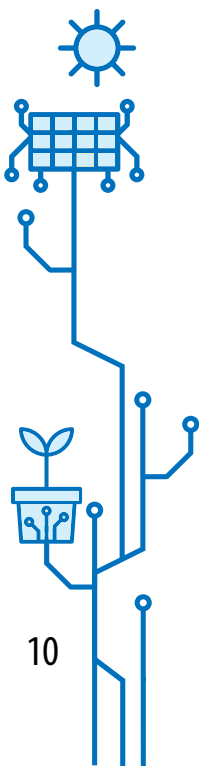
In the Fourth Industrial Revolution, technology is disrupting our world and shaping the challenges that newly minted graduates in the social sciences and STEM disciplines will be called on to address in their professional careers. The solution to manage such disruptions can be found in the disruptions caused by societal and technological innovations built on the foundations of sustainability that promote values of symbiotic and sustainable living, minimal natural resource use, mitigating biodiversity stress, designing resilient systems, and bridging societal inequalities.

A paraphrase from the XUB Sustainability Summit Brochure

In the context of the Fourth Industrial Revolution, I suggest that we provide the opportunity for our students to develop five non-technical, career sustaining competencies:

1. To continue learning through reflection and the associated creation and articulation of knowledge.
2. To speculate and identify gaps that foster innovation.
3. To ask questions, actively listen, reflect, and identify gaps and opportunities worthy of further investigation.
4. To make decisions using incomplete information.
5. To think critically (deductive reasoning and inductive speculation) and identify a way forward.

My intent in this talk is to foster changes in curricula aimed at equipping our newly minted graduates with non-technical career sustaining competencies and values that empower them to foster societal and technological innovations that promote symbiotic and sustainable living, minimal natural resource use, mitigating biodiversity stress, designing resilient systems, and bridging societal inequalities.



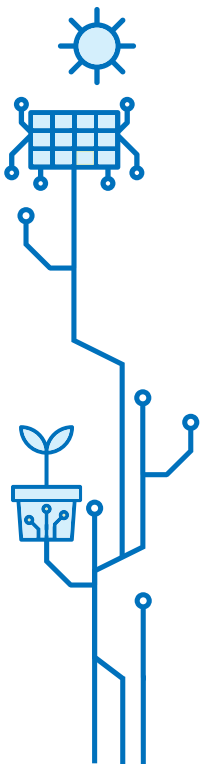


### **Dr. U. S. Saha**

Chief General Manager, Dept. of Economic Analysis & Research,  
NABARD Head Office, Mumbai

### *Message*

I am very glad to observe that the theme of the Summit “Sustainability Disruptions for Mitigating Global Risks” is the most appropriate in the present context. Needless to say, that there is a global awareness about the impact of climate change which is experienced by most of the countries and primarily by our country. The Economic Survey 2018 also expresses concerns about the impact of climate change on agriculture, and particularly on the small farmers and poor people. Keeping this in view, it assumes greater importance to relook at agriculture and coping mechanism thereto for enabling the farmers to sustain with streams of income generation on a continuous basis for livelihood improvement. I wish for the best success of the Sustainability Summit and I am sure, important and appropriate actions for adoption and mitigating risk of climate change will emerge from the Summit.





## Mr. P. S. Narayan

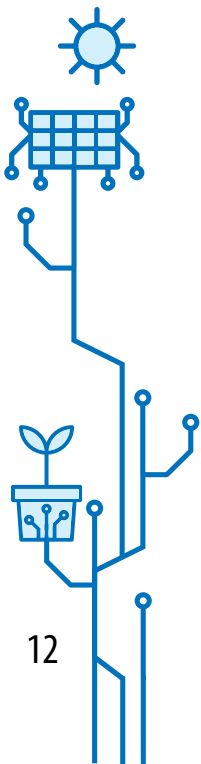
Vice President

Head - Sustainability and Social Initiatives, Wipro Ltd

Trustee and Head – Wipro Foundation

### Message

“It’s wonderful to see XUB host its third sustainability summit in successive years. It represents, along with its post-graduate program in sustainability, an unwavering commitment to bringing sustainable thought, behavior and action to the forefront. The theme of the summit highlights the stark reality that the most overwhelming risks facing humanity today are social and environmental, a fact that has been repeated borne out by the annual global sustainability risk report of the World Economic Forum at Davos. Issues like ‘Failure of climate change adaptation’, ‘water crises’, ‘man made environment disasters’ invariably feature in the top 10 risks of the report. Disruptive shifts of this nature demand equally purposeful and disruptive responses, which are rooted in dynamic systems thinking that are innovative and yet inclusive and fair. This will require a confluence of diverse actors, perspectives and institutions to come together in complementary ways. Albert Einstein had aptly said that we cannot solve problems with the same kind of thinking that created them in the first place. I am sure that summits like these and institutions like XUB provide the right platforms for catalyzing the paradigm shifts in thinking required of all of us. My hearty congratulations to Xavier School of Sustainability led by Prof Peppin, Fr. Paul and the entire team for leading the way in our journey ahead towards a more sustainable, inclusive and humane world”



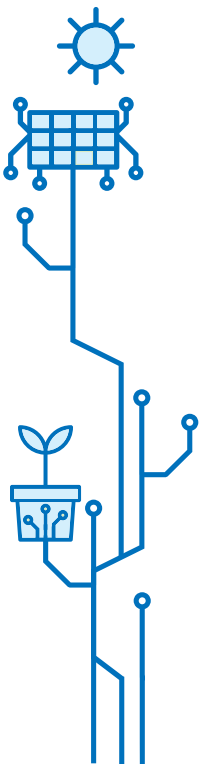


## Mr. Tony Henshaw

Chief Sustainability Officer  
Aditya Birla Group, Mumbai

### Message

Congratulations to the Xavier School of Sustainability led by Prof Peppin, Fr. Paul and the entire team on the occasion of their third consecutive Sustainability Summit. It is only by education as many people as possible to the dangers of a deteriorating and unsustainable planet that we can hope to make the massive changes to the way we operate needed to make the transformation to a sustainable world. At the Aditya Birla Group we subscribe to the saying that “Business cannot thrive on a planet that fails” and so to build Sustainable Businesses we need capable people who can build the necessarily advance business management systems and drive the innovation needed to make Businesses and the Planet sustainable. I look forward to the summit and know that it will once again be a huge success.



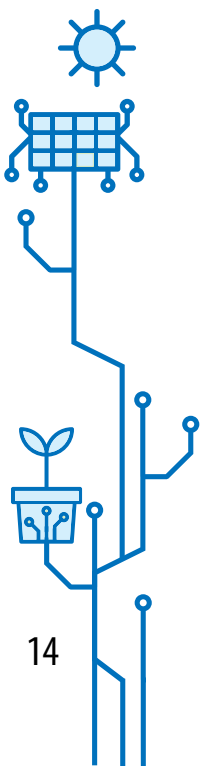


### **Dr. Balasubramanian Iyer**

Regional Director, International Cooperative Alliance Asia and Pacific, New Delhi.

### *Message*

The Summit on, Sustainability Disruptions for Mitigating Global Risks, is coming at a critical juncture. The risks highlighted in the World Economic Forum report have been consistent over the years and speaks to the need to move away from, 'business as usual' approach. The risks are integrated and in an interconnected world the effects can cascade across boundaries in no time. There is need to make economic growth more inclusive, deal with rise of disaffection with the political and economic status quo; and reconcile with growing identity nationalism with diverse societies. From a business perspective, the link between sustainability, value creation, and the bottom line is becoming clearer. I am glad to see the Summit will discuss approaches that promote values, focus on resiliency and address social inequalities. I wish the Summit all success!





**Dr. Ajit Kumar Pattnaik**, IFS, (Retd.)

Former PCCF, Odisha,

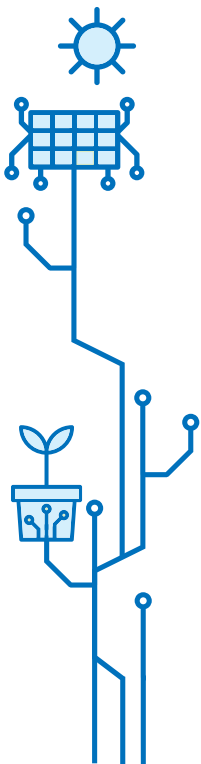
Ex Chief Executive, Chilka Development Authority, Bhubaneswar

Vice President, Wetlands International South Asia

*Message*

**Ecosystem health towards sustainability: biodiversity key to ecological integrity & resilience.**

Anthropogenic activities are major driver of degraded ecosystem, disrupting their resilience. Healthy ecosystem is essential for resilience and uninterrupted flow of ecosystem services, highly essential for human wellbeing. Accelerating rates of environmental stress due to climate change and the continued loss of global biodiversity adversely impacting the functions and services delivered by ecosystems. The integrity of ecological character is crucial for the ecosystem, to cope up with the predicted future environmental changes. Much ecosystem management is focused on the provision of ecosystem functions and services under current environmental conditions, yet this could lead to inappropriate management guidance and undervaluation of the importance of biodiversity. Although potentially less important in the short term, biodiversity, encompassing variation from within species to across landscapes, may be crucial for the longer-term resilience of ecosystem functions and the ecosystem services that they underpin.





## Dr. M. Nadarajah

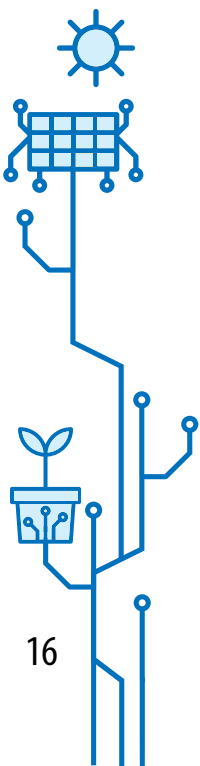
Director, The Global Centre for the Study of Sustainable Futures and Spirituality (GCSSES), Malaysia  
And Chair Professor, Centre for Humanities and Compassion Studies,  
Xavier University Bhubaneswar

*Dr. Nadarajah (Nat) earned a Ph.D. in Sociology from Jawaharlal Nehru University (JNU), New Delhi in 1993. He started his work life in the squatters of Chennai, India in the 80s. Since then, he has worked in many capacities and positions in a number of initiatives covering consumerism, environmentalism, philanthropy, pre-school education, people-oriented design, process management, urbanism, agro ecology, spirituality, and sustainability. Nat is presently involved in implementing the International People's Agro ecology Multiversity portal (IPAM). It is meant for small farmers, fisher folks and indigenous people involved in agro ecology. A pioneer of the Global Centre for the Study of Sustainable Futures and Spirituality (GCSSES/www.gcses.org), he is also now in the process of engaging with institutions to explore futures emerging from the critical understanding of the relationship between sustainability and socially-engaged spirituality in addressing critical planetary challenges. Nat has several books and documentaries to his credit. His doctoral thesis was published as *Culture, Gender and Ecology: Beyond Workerism* (1999). His responses to politics and culture in Malaysia was published as *Another Malaysia is Possible and Other Essays: Writings on Culture and Politics for a Sustainable World* (2004). He co-edited the book *Urban Crisis: Culture and the Sustainability of Cities* (2007) for a three-year project on urbanization by UNU, Tokyo. Between 2005 and 2006, he was an Asian Public Intellectual (API) Fellow with a Japanese Foundation. It resulted in a book on sustainability and spirituality, *Living Pathways: Meditations on Sustainable Cultures and Cosmologies in Asia* (2014). Presently, he is working on two pictorial books. One pertains to Indian Malaysians – *Protest, Prayer, Peace: Visual Disclosures of the Indianans of Malaysia*. The second one is part two of *Living Pathways* (mentioned above). It captures pictorially *Ways Back to Nature*.*

*Nat is presently located at Xavier University Bhubaneswar. But he also works from Kuala Lumpur, Chennai, and Coimbatore in his effort to build the Centre for Humanities and Compassion Studies.*

## Message

Sustained nurturing of anything to allow for its uninterrupted growth is always a major institutional challenge. It requires focus, resources and unalloyed commitment to a cause, come what may. I must congratulate the Xavier School of Sustainability led by Prof. Peppin and his entire team of dedicated staff, closely supported by Dr. Fr. Paul. The school has nurtured, and continue to nurture, the spirit of sustainability. This is by itself a laudable feat. The annual summits of the School have been a feather in the cap, bringing to students and teachers of the School the latest and the state of the art, updating and preparing them for the tasks ahead, planning for and managing a safer planet for all of us. The present summit I hope is 'creatively disruptive' enough so that students and teachers of the School further consolidate its strength, reach and influence. I see these summits as part of the journey of the School to creatively shape itself and I hope that these summits, and their impact, will draw the School into an international network of critical educational institutions offering Hope for the world faced with so many very serious man-made ecological crises. I see this as an urgent task of the School.







## Mr. Jagadanand

Founder Member, CYSD  
Social Activist and Civil Society Leader

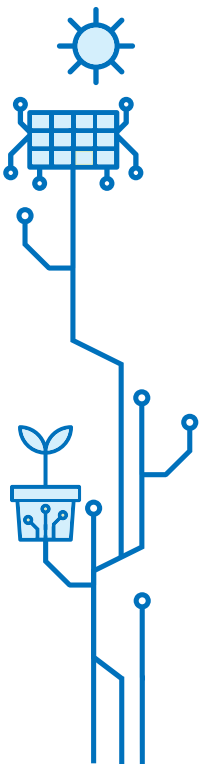
*Presently he leads the Centre for Youth and Social Development (CYSD), an autonomous development organization working with the tribal and rural poor in Odisha with an aim to realize the goal of people-centered equitable development. Sustainable Rural livelihoods, participatory governance, community health and community based disaster resilience are amongst the major areas of work of the centre. Jagadananda demitted the office as the State Information Commissioner, Odisha to advance the Right to Information (RTI) agenda in the State in August 2013 and was a member of the State Planning Board of Odisha, following his active campaigning for people-centric decentralized planning. Presently, he is the Governing Body Member of Odisha Disaster Management Authority (OSDMA).*

*He is also the President of the National Social Watch (NSW), a broad-based coalition of civil society organizations, which brings out annual citizens' reports on the performance of the key governance institutions like the Parliament, the Judiciary, the Executive and local self governance institutions.*

*In 2008, he was a Member of the Committee on State Agrarian Relations and the Unfinished Task in Land Reforms formed by the Union Ministry for Rural Development, Government of India.*

*Jagadananda has held offices as Chairperson, Voluntary Action Network India (VANI), the largest national network of social development agencies in India, Chair of Credibility Alliance, a national forum for promotion of accountability norms for Civil Society Organizations and currently the Chair of Sa-Dhan, a national network of Community Development Micro Finance Institutions with wide membership spread across the country.*

*In 2005, he was offered a senior visiting fellowship at CIVICUS-World Alliance for Citizen Participation, and worked on the issues of legitimacy, transparency and accountability within civil society at the Kennedy School of Government at Harvard University, Cambridge, USA. His publication 'Civil Society Legitimacy and Accountability' is widely available in French, Spanish, Arabic and English languages. His other publications include "Organisation Behaviour" a framework for Non-Governmental Development Organisations and an Organisation Self-Assessment tool for NGOs' (OSANGO).*





## Summit Overview

The Global Risks Report-2017 published by the World Economic Forum mentions managing disruptions as one of the major challenges facing the world today. The report indicates that environmental, economic, geopolitical, societal, and technological spheres constitute the landscape of global risks.

Technology is radically transforming our world and shaping the risks we face today and therefore among all the risks; the technological risks are perceived to be critical challenge. Emergence of Artificial Intelligence (AI) and Robotics is said to be leading the 'Fourth Industrial Revolution' (4IR). The threat of AI programmes replacing humans is assumed to be causing major risks and disruptions.

The solution to manage such disruptions can be found in the disruptions caused by societal and technological innovations built on the foundations of sustainability that promote values of symbiotic and sustainable living, minimal natural resource use, mitigating biodiversity stress, designing resilient systems, and bridging societal inequalities.

Educational institutions play a significant role in promoting newer sustainability-based values, resource efficient models and technological advances. Together, these actions shall take pre-eminence in mitigating emerging global risks as transformational change in the society can happen only through spreading knowledge, information and sustainability-oriented values among citizens and especially the younger generation.

Besides, involvement of stakeholders including the state, business corporations, educational institutions, international and bilateral development agencies, and civil society is equally essential in order to mitigate the risks caused by the technologies of the 4IR and create a sustainable world connecting People, Planet, Profit, Prosperity and Peace.

Taking forward the Jesuit values of environmental justice and peace, Xavier School of Sustainability (XSoS), Xavier University Bhubaneswar (XUB) is organising its' third sustainability summit with the theme "Sustainability Disruptions for Mitigating Global Risks. The summit will be held during February 9 - 10, 2018 at Xavier University Bhubaneswar, India.

There are three themes / tracks: 1. Global risks and Sustainability Disruptions: Trends & Tremors 2. Sustainability disruptions for Restoring Biodiversity and Ecology and 3. Sustainability disruptions for mitigating Social, Economic and Geopolitical risks.

Volvo Group India and Wipro is partnering with XUB in this grand event. The Summit invitees hail from International and National Civil Society, INGOs, Top corporations and Enterprises such as World Economic Forum, Vienna University of Technology, Austria, IUCN, IEA, ISA, ASEAN Regional Centre for Biodiversity, UNEP, Conservation International, Volvo Group India, Wipro etc.

The summit will award best poster, paper and video entries. All accepted abstracts along with author/authors profile will be published in the compendium that will be released at the inaugural function of the summit. Selected papers will also be published as book by Xavier University Press.

## Xavier University Bhubaneswar (XUB)

### Mission:

Education in the spirit of 'Magis'

### Vision:

Enabling people to live extraordinary lives, and be the light for the world

### Values:

- Integrity and Honesty
- Quality
- Respect for Individuals
- Passion for performance
- Transparency
- Social and Ethical Sensitivity
- Commitment

## Schools of Xavier University Bhubaneswar (XUB)

The Xavier University came into being with the Government of Odisha passing the Xavier University Act in June 2013. The identity of Xavier University is distinguished by its philosophy of 'Inspiring Futures'. Presently it hosts eight schools offering Doctoral, Masters and Under-graduate programs:

- Xavier Institute of Management (XIMB)
- Xavier School of Human Resource Management (XAHR)
- Xavier School of Rural Management (XSRM)
- Xavier School of Sustainability (XSoS)
- Xavier School of Communication (XCOMM)
- Xavier School of Economics (XSE)
- Xavier School of Computer Science and Engineering (XCOMP)
- Xavier School of Commerce (XSC).



## Xavier School of Sustainability (XSoS)

### Mission:

Sustainability Education in the spirit of "Magis"

### Vision:

Enabling people to live extraordinary lives, and be the light for the world

### Values:

- Caring and Healing
- Transparency and Accountability
- Justice and Equity
- Peace
- Resilience
- Passion for Innovation and Performance
- Social, Ecological and Ethical Sensitivity
- Interconnectedness

## Programs offered by Xavier School of Sustainability (XSoS)

### Doctoral Program

- PhD in Sustainability Studies
- Integrated PhD in Sustainability Management

### Post Graduate Program

- MBA in Sustainability Management (2 Years)
- Integrated Post Graduate Program in Sustainability Management (3+2 Years)

### Bachelor Degree Program

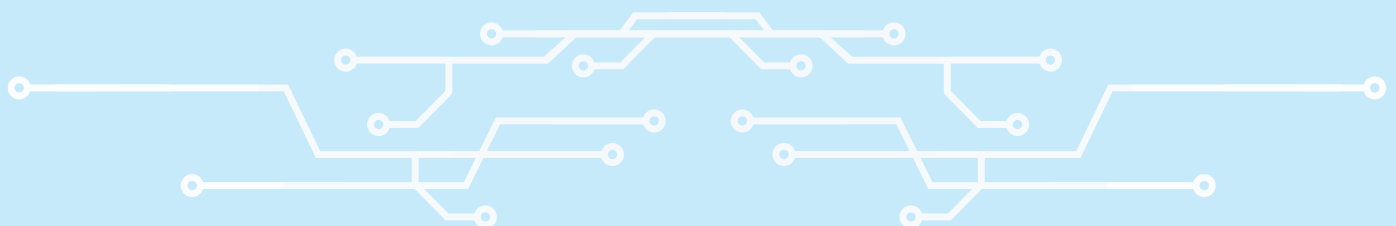
- BSc Sustainable Development (3 Years)



# Theme 1

## **Global Risks and Sustainability Disruptions: Trends and Tremors**

- Societal Risks
- Economic Risks
- Environmental Risks
- Technological Risks
- Geopolitical Risks







**Mr. Tony Henshaw**  
Chief Sustainability Officer,  
Aditya Birla Group, Mumbai



*Tony is a Chartered Electrical Engineer and spent his early working life building and commissioning subway trains in South Korea, Portugal and for the London Underground.*

*He received his MBA from the Manchester Business School in 1988, graduating with a Distinction.*

*He worked in various operations, finance and strategy management roles in Bolivia, Venezuela, Turkey and Azerbaijan before joining CEMEX SA in Mexico and then Vedanta Resources plc as Chief Sustainability Officer.*

*He joined ABG in 2013 with a mandate to formalize and integrate an innovative sustainability model required to help the Aditya Birla Group and Mr Birla reach the 2017 Group vision to be the leader in sustainable business practices across all its global operations.*





## Mr. Manpreet Singh

Director, Advisory Climate Change  
& Sustainability KPMG

*He has been working in the field of Environment, climate Change and Sustainability for the last 13 years. He has advised a large number of clients in the government, Multilateral and private space. The focus of his work has been to primarily assist enterprises in better understanding the complex and evolving policy, regulatory, and business environment risks and opportunities relating to sustainability and to help them capitalize on the resultant commercial opportunities. He has worked extensively on strategic and innovative interventions related to climate change including access to finance and technology through international financial mechanisms/institutions. He has also assisted several investors in mitigating risks by screening their investments through an Environment, Social and Governance lens. He is currently involved in several engagements related to internalization of externalities and determination of true value created by organisations through social and/or environmental programmes. He has also been on the international expert panel for the United Nations Development Programme and has worked in many developing countries in that capacity including Kenya, Ethiopia, Cameroon, Bhutan, Sri Lanka, Myanmar, Singapore and Timor Leste.*



## Mr. Mark Macqueen, MBA, LL.M.

Director, AN-COR-TEK C.E. GmbH,  
Vienna, Austria, Europe



*Mark Macqueen is a Director of An-Cor-Tek, an Austria based company that specializes in international strategic consulting with a special focus on the development of mineral resources. He started his career as a researcher in the field of Mineral Economics at the University of Leoben in Austria where he focused on the analysis of the global long-term demand of selected mineral resources. From there progressed into the Innovation and Technology Transfer Unit of the European Union. After that he specialized in strategic advisory and held several key management positions in the EU, the Middle East and SE-Asia. Mark's key expertise is the detailed analysis of existing structures, the strategic planning and – based on this - the empowerment of people. As a trained Mineral Economist with decades of leadership experience in industrial and development projects he can significantly contribute to the topic of 'sustainable development'. This from the view of a researcher (global risks), infrastructural planner (structural development risks), but also from the hands-on perspective of a manager (operational risks).*

## Sustainable Energy – Challenges of the upcoming Energy Transition

The success of living organisms in an ecosystem relates to the amount of energy they can secure for their own survival and reproduction. Ultimate success of a species results in an exponential increase of its population, which directly - by its structures, consumption and emissions - influences the living conditions and chances of survival of other populations in the ecosystem. The extraordinary success of mankind is caused by the fact that it is able to source energy from various sources. The evolution of these sources allowed mankind, that is currently in the seventh stage of energy generation, to provide enough energy to enter the age of globalization.

But this success comes at a cost. The global human society directly influences the global ecosystem which already is burdened to a degree that it might change into an environment that provides far less favorable conditions for human survival. To avoid this and to protect our environment, measures will have to be taken to manage the global impact of humanity. The most important approach in this respect is the 'Energy Transition' that aims to change the environmental footprint of key industries by the promotion of sustainable energy. This ranges from energy generation and distribution via more efficient production methods to the transport sector where further ways to store energy will be introduced. This presentation will point out the problems and challenges of this transition.

**Mr. Kiran Radhakrishnan, DNV GL**  
Business Assurance India Pvt. Ltd.

## Sustainability and Risk Management

Although there is no single universal definition of corporate responsibility (CR) or sustainability, it is often spoken of as a commitment to a set of values that recognize the role of Organization's/Institutions/business in building a better society. Organization's face intense scrutiny from a range of stakeholders: regulators, investors, creditors, insurers, employees, customers, non-governmental organizations and others are all increasingly demanding that Organization's demonstrate systematic management of material risks in their business processes as part of their corporate responsibility.

With its escalating demands for transparency and accountability, Sustainability reporting brings out the outcome of risk management and is presented by organization's through their sustainability report highlighting their strategic outlook, performance and prospects reflecting their outcome on corporate responsibility. Further the process of reporting helps the reporting organizations to respond to the challenging new world of managing key material risks. Society's expectations have broadened over time. It's no longer enough for to explain what they do with the revenue they make. They are increasingly being held accountable for how they make it.

Further they are also regularly judged on how they report their sustainability or extra financial performance. Is the reporting 'green-wash' or is it trustworthy? Failing to respond in a credible manner can put a organization's reputation at risk. It can even threaten the social license to operate, there are numerous cases in past decade which highlight misadventures by organization's resulting in disappearance of highly successful and profitable organizations.

The new risk reality requires more coordination and communication than perhaps ever before due to the globalization alongside rapid changes in geopolitical and environmental conditions presented with growing levels of complexity and uncertainty in their operations. Organization's today should navigate a competitive landscape that is changing faster than before, if they want to retain and strengthen their long-term profitability, brand and repute, operational efficiency, human capital, and be innovative.

DNV GL has identified 14 risk categories divided into four risk areas:

- Business ethics
- Environment
- Society
- Employment

Communication of sustainability performance is a key aspect of risk management, and a growing number of organizations are now reporting regularly on their sustainability targets and performance, helped by the concept of 'materiality'.

Further the sustainability function is a strategic asset that contributes to the financial success through improved management of intangible assets, such as reputation, brand, people, relationships, organizational efficiency and innovation. In our experience, strategic, effective risk management helps to build a competitive advantage by attracting investors, protect and leverage intangible assets, strengthen the Social and market position and stimulate long-term profitability and success.



**Mr. Ravishankar C K**  
Director, Brainchild Group



*He is an alumni of University of Madras, IIM-Ahmedabad and is a qualified professional with about three decades of strategic Human Resource Management and Consultancy experience within diverse industries such as Service, manufacturing, construction, retail and consumer, trading, franchises etc.in India and abroad. GCC experience of 19 years. An Adviser of the CEO and Board of Directors on strategic Talent Management function for the last decade. Human Resource Professional - Trained Trainer, SAP-HCM User. Senior Assessor of Dubai Quality Award Secretariat. Awarded the Global HR Leadership Award by the World HRD Congress in 2014. Currently working as Adviser & Director – Talent Management & HR : renowned MNC in the Media Industry, responsible for the South Asia region ( six countries) with HQ in Dubai. Ravish is also the visiting faculty for Management Institutes*

## Disruption : The order of the Media Industry

The word disruption is one of the most familiar term in the Media Industry. In fact, it is more than that. I may not be off tangent to state that the disruption is the very reason for the existence of the industry. In the current era, with the presence of about eighty percent of the workforce of the Media Industry being the Millennials, disruption is the order of the day. Millennials have their own agenda for discharging their duties / doables. The Millennials are the first digital natives, the gadget people who grew up with internet and lately the WiFi. They use the media and technological innovations for a pattern that feeds itself. These people quickly adapt themselves to the new innovations and become very dependent on the same. Once achieved these same people expect other products and are ready to change for those specifications. And before you can even orient yourself, they are already demanding newer versions, newer options. In view of this, it is no surprise that media and marketing are increasingly obsessed with this generation. Everyone is competing for this group's attention, trying to be the first to grasp where it will go next.

The Millennials, or better put DN (Digital Natives) want to consume media and content in every which way. As a social group, share information, messages and videos that influence their decision making at any point of time. The Millennials want to be part of any user generated activities. Most companies in the Industry are engaging this generation for their offerings. The Millennials generation is otherwise termed as the "I, Me, Myself" generation, by Times. They are people born from 1980 to 2000. The group is made up mostly of teens and 20-somethings. Currently, they are the biggest age grouping in most modern societies in the history. Each country's millennials are different, however, because of globalization, social media, the exporting of Western culture and the speed of change, millennials worldwide are more similar to one another than to older generations within their nations. The Internet, urbanization and the 'one-child' policy have created a generation as sumptuous, overconfident and self-involved as their Western counter parts. These aren't just rich-kid problems; the poor millennials are also adopting what the rich ones behave. Thanks to the social media. Thus this generation is most enterprising of them all.

The Media Industry is ever evolving. Artificial Intelligence is replacing the basic human fabric. Most of the mundane repetitive tasks are all atomized. I see many jobs are on the threat of getting extinct. Any task or series of tasks which can be coded in an algorithm will be lost to the machines. Seasoned professionals will find machines replacing them in many of their activities. Just as the humanoid Sophia narrated, men and machines can co-exist to create a new world together. The disruption has changed the way I approached my life all together.



### Mr. Alok Gupta

Country Manager, Boston Strategies International (BSI), New Delhi

*He is a New Delhi based energy and sustainability expert and founder-CEO of EnvEcoLogic. He has consulted governments, corporations and multi-lateral agencies globally. He has published over 5 dozens articles and papers and has delivered several talks on the subjects of climate change adaptation, business sustainability, sustainable development, circular economy, green supply chain management, energy security etc. He is committed to the vision where sustainability will define the new world order. He holds MS degree in Environmental and Resource Economics. He is technical steering committee member of Global HSE and member of the Society of Safety, Health, Environment & Sustainability Professionals (SHESPro).*

## Global Risks and Sustainability Disruptions: Trends & Tremors

The talk will cover how global climate risks have evolved over the last few years, through using various observations, examples and case studies to explain the risk trend. The presentation will also talk about whether evolved version of sustainability/climate risk is worse or represents a better state of affairs than before. What the expected implications on business and economic growth from both global as well as regional perspective could be. Finally, some of the prudent risk mitigation management strategies to tackle the changing times will be discussed.



**Mr. Abhishek Ranjan**  
Associate Director, Brillio Technologies



*Abhishek brings with him 12+ years of Corporate and Development Sector experience. He is currently leading Corporate Sustainability and Responsibility (CSR) at Brillio Technologies with a vision to help 100,000 underserved young minds through STEM Education. As part of the global leadership team, he started and created the CSR programs in Americas, and Brillio received some of the top global honors including Microsoft–YouthSpark Partner of the Year 2017, at Washington D.C.*

*Abhishek is an alumnus of IMT Ghaziabad and has done executive management program in Digital and Social Media from ISB, Hyderabad and Strategic CSR from IIM Bangalore. He started his career with IBM as Business Analyst and later worked for Oracle Financial Services, where he was credited with setting up the Industry Relations function in India. He is a visiting faculty at Narsee Monjee Institute of Management Studies (NMMS) and advocates CSR through his lectures in B-Schools. He does pro-bono advisory for several non-profits and industry bodies like FKCCI. For his valuable efforts in strengthening the CSR ecosystem in India, he received CSR Professional of the Year Award at India CSR Award 2016.*





### Mr. S. N. Sahu

Joint Secretary, Rajya Sabha Secretariat,  
Parliament of India, New Delhi.

*Mr.Sahu was Officer on Special Duty and Press Secretary to the late President of India Shri K.R.Narayanan and served as Director in the Prime Minister's Office. He is currently Joint Secretary in the Rajya Sabha Secretariat.*





**Mr. Alok Raj**  
PhD Scholar, IIM, Lucknow

## Sustainable Supply Chain Channel Coordination: A Game Theoretic Approach

The importance of triple bottom line has been widely recognized by both industry and supply chain (SC) literature. However, in the context of SC coordination, simultaneous treatment of greening effort, social responsibility, and profit have received scant attention in the extant literature. This paper focuses on this gap and we propose a generalized analytical model for a dyadic supply chain with triple bottom line approach. We analyze SC coordination mechanism with simultaneous consideration of greening and social effort put by different or same SC agent(s). We formulate a supplier-buyer stackelberg game where one SC agent becomes responsible for either greening or social responsiveness or both. We further investigate the effect of market potential, marginal costs of production, customer sensitivity towards greening, and social responsiveness index on optimal retail prices and optimal profit distribution among SC agents for four different scenarios of triple bottom line adoption for a decentralized supply chain setup. We use a numerical example to understand, analyze and illustrate these better. The paper demonstrates that linear two-part tariff contract can coordinate the overall supply chain for all cases of a decentralized supply chain. Our generalized analytical model is able to capture the dynamics of pure profit maximizing SC, green SC, and socially responsible SC as special cases which is the most significant contribution of this paper. Finally, we discuss managerial implications and directions for future research.





### **Mr. Arya Kumar, Ph.D.**

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*He is a Research Scholar in Finance in Siksha O Anusandhan, Deemed to be University, BBSR and has a Master in Commerce from Manav Bharti University, Solan, HP. He is an MBA from I.M.I.T., a Govt. College, B.P.U.T constituted. He has a specialization in Human Resource (major) and Finance (major). He has published few articles in ICMAI journal and presented papers in national and international seminars.*

## **Sustainability of IT Companies can Support for A New Indian Economy**

Information technology is considered as the modern era of any nation's growth. A healthy country in today's world depends on the innovative technology or advanced mechanism to face the global market. For last few decades it is observed that several IT companies has contributed a lot for the economic development of a nation. A sustainable growth of IT industry in a developing country will make a strong market for outsourcing the technology from developed country. This exchange will help to build healthy relation and open several job opportunities. Higgins model suggests various method to measure the performance of firms like total asset turnover (assets efficiency), debt ratio and equity ratio (financial leverage) and current ratio (liquidity). However, the sustainable growth rate is a method that identifies the performances of firms that they supposed to achieve. This helps to compare the actual growth rate with sustainable growth rate. In this paper, an attempt has been made to critically analyze the financial and operational policies that will help to maintain a healthy growth. For examining the sustainable growth rate of Indian IT sector, the companies listed in BSE 30 have been selected as these IT companies are the representative of the IT sector in India. The analysis will reveal the impact of sustainable growth rate on profit margin, debt-equity ratio, return on equity, dividend payout ratio and return on total assets to sales.



## Dr. Pravat Surya Kar

Marketing Area, Professor, GIM, Goa, Chair Executive PGDM PT, GIM, Riband-  
er, Goa



*He has 18 Years of professional experience in Academics, Consulting, and Research. His research interests includes management of relationships and engagements in online as well as offline marketing contexts. Prior to joining academics in 2005, he had worked for NPCL, Noida, WESCO, Orissa - power distribution utilities and Eli Lilly, a pharmaceutical MNC. His responsibilities during those corporate assignments included management of B2B customer relations, and sustainable business development.*

## Business Students and RRA: Case for Sustainability Appreciation

Gradual saturation of urban and mature markets has led marketers to engage with rural and emerging economies. Rural market of India presents opportunity that few marketers can afford to ignore today. However, these markets in spite of their size (total rural population 3.4 billion worldwide), pose many challenges (Accenture, 2010). For instance, 60% of Indian villages are connected by all-weather roads but 50% of India's purchasing power is in rural markets (Colgate-Palmolive, 2008). Serving rural consumers in emerging economies like India, owing operational and logistical challenges, appear non-lucrative (RMAI, 2008). There are selected success stories, but professionals and researchers have learnt their lessons from below par outcomes of several celebrated projects alike (e.g. Hariyali Kissan Bazaar in India, P&G's PuR Commercial failure in Pakistan etc.). The key learning is conventional and successful practices of urban marketing aren't often very suitable in rural context.

There are several MNCs and local brands at have initiated projects to tap potential of India's rural markets. Thus, extant literature presents many rural centric market access projects (Table -1). It is evident that most companies, in relation to rural marketing, try to create infrastructures or dedicated market access means that they own or can regulate. Such an orientation appears to be a step in the right direction at the first glance. But, analysis of cost with respect to last mile reach and profit margins of these projects make their limitations become obvious (Rangan & Rajan, 2007). Problems arise because most villages of India are small and widely scattered. It makes demand aggregation a limiting factor. Unviability of these projects in tapping rural markets is also evident in failures and rollback of projects like, ITC's Choupal Sagar (BS, 2008), and Hariyali Kissan Bazaar (Bell et al., 2008; BS, 2012).

In this paper we have analysed and discussed - student groups' experiences in appreciating the gaps accessing rural markets based on their RRA findings. We have also reported, how such an exercise may help future marketers to develop suitable orientation to design and manage appropriate rural marketing initiative. Findings reported indicate higher appreciation of participatory approach and RRA seems to offer deep insight in to rural context. The same would help in orienting future managers to suitably engage with rural markets with customised solutions to local problems. Thus, may enhance sustainability of rural marketing initiatives.



**Dr. Raj Kishore Sahu**, Senior Medical Consultant, Health & FW.  
**Mr. Mukesh**, Dy. Director, National Statistical Systems Training Academy  
**Ms. Sachala Sahu**, Consultant Psychologist

*He holds a Master Degree in Medicine, a Post-graduate Diploma in hospital Administration and a Master in rural management. He had earlier worked with UNICEF, Global group of hospitals and Health and FW Dept. Govt. Of Odisha in Various roles. He has presented paper in several international and national conferences and seminars. He has lot many publications regarding public health issues, Health insurance, Digital health care delivery, human resources in health care and healthcare marketing area in journals of international repute like journal of health Management and public health etc*

## Treatment with medical advice For a Sustainable Healthcare-A study in India

The sustainability concept is perceived across a range of industries like energy, agriculture, forestry and others but little felt in health care. The hazardous effects of biomedical waste produced by health care settings or the irrational use of drugs without the prescription of physician is a major concern, it causes various societal risks like Infection and drug resistance which is practically very difficult to deal with. The social determinants of health like poverty, malnutrition, poor housing, violence and inequality led to a situation where the poor have access to doctors, but the quality of the medical advice and mindset of people in getting health service are quite contradictory. This paper attempts to provide an overview of treatment on medical advice before and after hospitalization in India, using the unit level data of Social Consumption on Health collected by the National Sample Survey Office (GOI) during January 2014 to June 2014. The data were analyzed by two approaches at an all India level and also at the State level. In the first approach, discussion about the medical advice for treatment before and after hospitalization of family members has been dealt, based on a descriptive analysis and the second approach, a logistic regression analysis has been made to get a snapshot about the factors influencing the activity. The analysis reveals that a very high percentage of hospitalized family members were not treated on medical advice before hospitalization in India. However, an improved approach towards treatment on medical advice after hospitalization has been observed. The chunk which was not treated or did not carry out treatment needs to be identified and focused upon to improve the overall health environment. Contemporary healthcare in India is presently dominated by use of pharmaceutical drugs and most indicators suggest that these approaches have had very limited value in dealing with chronic disease without proper medical advice. A transition towards sustainability involves working across the health system and partners to deliver health care on the triple bottom line i.e. simultaneous financial, social and environmental return on investment. The matter of interest is that keeping people healthy costs a fraction of maintaining them in illness.



### Dr. Sarat Kumar Jena

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*He is a senior researcher of Comparative Literature and Translation Studies at Central University of Gujarat, Gandhinagar. He is the general editor of The Comparative Review (IACLSC) and Executive Editor of Journal of Mass Communication and Journalism, Editor of Arts and Social Sciences Journal (OMICS Group, USA) and Editor of International Journal of English Literature, Linguistics and Interdisciplinary Studies (Info Media Group, Tetovo, Macedonia). He has delivered research seminars in various institutions and universities both India and abroad. He is a member of ISFNR (International Society for Folk Narrative Research), International Society for Third Sector Research, and Asia Network: Promoting Asia in the Liberal Arts and founder of IACLSC (International Association of Comparative Literature, Society and Culture). He was delegate in ICHR/AHRC Workshop on Cultural Heritage and Rapid Urbanisation in India by Newton and Bhaba Fund (New Delhi, 2017), EuroScience Open Forum ESOF 2016, Manchester (UK, 2016) and alumnus of 'Greifswalder Ukrainicum' Germany.*



## Tribal Narratives As Case Of (Post)Modernity Voices Of Center And Margin: Contesting Theory Of 'Nation Formation' In (North) East Indian Literature

Ethnographic representation of the tribal society and clan culture of India in modern Indian literature emerged in colonial and post-colonial period may be seen as a political and economic manipulation prompted by Europe's quest for propagating power hierarchy as 'center-margin'; the 'tribal' identity emerged out of the meeting point of European modernity and Indian traditions may be realized as a consequence of the idea of Westernized nation-state which waves were disseminated during emergence of the colonial modernity in British India. Institutionalization of various tribal communities and their cultures in colonial India and in post-colonial period is a political process which is controlled by nation-state and its various stakeholders. The mission of 'representation vis-à-vis mis-representation' of tribes is achieved by various stakeholders in colonial India and later; both colonial elite and local elite's contribution for the formation of tribal identity in British India and in free India at different historical time period is an outcome of the nation-state ideology of West.

Henceforth, 'ethnographic novels' or 'tribal narratives' in Indian literature established as a literary genre during the emancipation of dominant idea of European nationalism in colonial India and free India need an urgent enquiry to understand the currents of 'representation vis-à-vis mis-representation'. In view of the political debate on 'authenticity and representation' in Indian literature in colonial and post-colonial period, this study examines tribal identity critically as portrayed in the fictional narrative of selected ethnographic novels in Odia, Bengali and Asomiya by Bibhutibhusan Bandyopadhyay, Gopinath Mohanty, Birendra Kumar Bhattacharya, Sunil Gangopadhyay and Rong Bong Terang written over colonial and post-colonial periods. The research in this study is carried out by historical and comparative approaches in literary discourse.



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**Mr. Oasis Bisht**  
Student, National Law  
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*Their areas of interests are Normative Economics, Law of Contracts and Sports.*

## Cryptocurrency: Is It Sustainable In The New Global Economic Community?

Characterized by lower transaction costs, better security and measurability than fiat money with a decentralized market; crypto currencies are attaining the interest of the scientific as well as the global economic community. The purpose of this work is to define and evaluate the ongoing trends of the literature concerned with the sustainability of crypto currencies as a legal tender, taking in view the social issues and the economic aspects. Over the course, we pivot the scope of research on sovereign nations which have reviewed the regulation of virtual currencies as a mode of payment across various outlets. Bitcoin as a legal tender has been allowed in only one country in the world so far. Japan is the only country in the world that has a proper legislation in place to regulate the trading of Bitcoin. It has also classified cryptocurrencies into 2 types and has put up regulations in place for a Bitcoin exchange to be set up, in Japan as well as for foreign Bitcoin exchanges. The Bitcoin exchange operations are to be regulated by the Japanese Financial Agency and they are even subjected to audit. Also Germany has allowed Bitcoin and termed it as "unit of account". It has said that legalizing it has meant that they can now be taxable which is beneficial for the country. Cryptocurrencies impacted the countries which have a less developed financial infrastructure, but a very high smartphone usage rate. Cryptocurrencies can be defined as "entries in a database which no one can change without breaking certain rules". Taking away all the pandemonium surrounding cryptocurrencies, it is not a very difficult process. The virtual currency exchange is based on a peer to peer network system, much like torrenting. Every peer has history of all the transactions that has ever taken place and thus a balance of all the accounts. A transaction in a blockchain system can be accessed by anyone having a private key to access those data in the public domain which are obviously encrypted heavily. Another important part of the cryptocurrency system are the miners. Their job in the cryptocurrency system to confirm transactions, mark them and add to the blockchain. The emergence of bitcoin has impacted the way we do business drastically. It has reduced all intermediate costs that are present in the banking system. A new type of business has emerged that will be handled and maintained by the cyberspace. Because of the speed with which monetary transactions can be completed within a few seconds, Cryptocurrencies have seen a rise in value for the past year. The reliable feature of the digital currency allows its users to not conceal their identities on the web platform and poses a great difficulty for malicious hackers to break in the chain. After the American Dollar, crypto currencies are gaining the form of a global currency, for its better acceptance among the online shoppers and investors. It is our opinion that cryptocurrencies if properly regulated can lead to a lot of proper usages. The idea of a blockchain that came with cryptocurrencies is already being used by various spheres in the industry around the world. The United Nations has discussed the possible usage of Bitcoin in microfinance; small scale rural off – grid farmers. It can reduce transaction costs for migrant remittances and eliminate remittance corridors with higher costs. It is being also used in energy generation and distribution by breaking away from the traditional system to lower individual operated microgrid levels which generates mutual trust and confidence among the people.



## Mr. Swayam Siddha Satpathy

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## Dr. Nancy Satpathy

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*Mr. Satpathy is a competent professional with Six Sigma Green Belt Certified from TUV SUD South Asia Pvt. Ltd. Lead Auditor from DNV GL., SGS, Certified OHSAS 18001:2007, Certified for Accreditation on School Grading & Rating from QCI.. He has 5+ years of domain experience in Quality Audit, Logistics Operations, Data Analysis and Process Management. He is skilled in handling quality audit, SOP designing & redefining, risk assessment, practicing of lean & conducting training. He is adroit in coordinating cross-functional process development, identifying opportunities and improving process and an effective communicator with good interpersonal & people management skills.*

## Environmental Management System (Ems) For Managing Environmental Risk

The challenge for any organization across any region of the world is to protect environment & to bring environmental sustainable business practices in their operational process. Researchers debate on the organization's negligence towards environment & most of the organizations were just doing business for profit maximization. The quest for environmental sustainability\* is just a mere importance for organization. Various planning, polices, training & reward system have been formulated & asked for measuring effectiveness on environment protection is just one control step forward for achieving clean, green & fresh environment for years to come.

International Organization for Standardization (ISO) is a worldwide federation of national standards bodies. The aim of ISO is to support innovation & provide solutions towards global challenges. The body has published 21,950 international standards related documents almost covering every industry. Environmental Management System 14001:2015 (EMS) is one the international standard that helps an organization to improve their environmental performance through more efficient use of resources and reduction of waste, gaining a competitive advantage and the trust of stakeholders. An environmental management system helps organizations to identify, manage, monitor and control the environmental issues\* in a "holistic" manner. ISO 14001 includes the need for continual improvement of an organization's systems and approach to environmental concerns. Many industrialists & organizations tries to follow & adapt this standard have actually made a significant contribution towards environmental sustainable business practices. EMS helps to support environmental sustainable development by taking systematic approach towards environmental management. It helps organization in achieving the following objectives:

- Adverse environmental impacts can be reduced
- Environmentally sound practices and programs can be implemented.
- Interested parties can come forwards to coordinate & support environmental initiatives.
- Managing the products throughout their life cycle.
- Mitigate the adverse impact that environmental threats can have on the society.



### **Mr. T. Sathish Kumar**

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### **Ms. G. Kavitha**

Sri Shanmugha College of Engineering  
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*Mr. Kumar is a highly qualified professional with cumulative experience of 20+ years in Institutions and Industry. He has hands on experience in Life Skill / Soft Skill Training / Accreditation like NBA, NAAC and is an expert in MOOC. He has rich experience in Training and Placement activities and Administration (Liaison Officer), extensive knowledge of problem solving, system installations and system upgrades, sound knowledge in E – learning and development and has experience in curriculum development, content development and campaign execution. He has exposure to Quality and Accreditation process, Brand Building, ERP designing and Implementation for the Education Sector, Examination Cell as Controller of Examination and Organizational Restructuring, Training and Talent Management.*

## **Geographical QoS Routing for Multimedia Streams over MANET**

The Mobile Adhoc Network (MANET) support in anywhere and anytime wireless communication expands the multimedia applications' scope. Ever demanding task of multimedia applications to determine the quality of routers among huge number of portable devices is to improve Quality of Service (QoS). To support real time multimedia streams, several geographical based QoS routing protocols have been proposed; however, the portable devices' expansion leads to stringent QoS demands in MANET. The main reason behind the QoS demand is the dynamic network capacity which relies on network size, node mobility, density, node energy, and communication range. The existing protocols are inefficient to the delay sensitive multimedia applications over MANET due to the lack of attention on dynamic network capacity. This work presents a new Network Capacity based Geographical routing (NCG) along with several routing schemes such as Radio Range Regulation (RRR) routing, Virtual Destination Routing (VDR), and Virtual Void Routing (VVR) called NCG++. The NCG++ routing estimates the network capacity in terms of QoS, facilitating minimum energy for every node to provide the QoS for varying network size, node mobility, and node density. Finally, this work simulates and compares the proposed NCG++ routing protocols performance with the existing QoS-GPSR. Thus, the performance evaluation illustrates that the NCG++ routing protocol outperforms the existing protocols.







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## Accountability for Corporate Sustainability

Accountability is the obligation of power-holders to take responsibility for their actions. It describes the mechanisms that promote both responsiveness and answerability at various stages throughout the formulation, implementation, monitoring and evaluation of government policies and programs. Accountability is the obligation of power-holders to take responsibility for their actions. It describes the dynamics of rights and responsibilities that exist between workers and the company that have an impact on their lives, in particular the relationship between the duties of the companies and the healthy campus which will lead to corporate sustainability.

The Accountability Initiative is an independent effort to strengthen corporate's accountability by undertaking policy research, creating networks of stakeholders, exploring new areas and ways to collect and disseminate information on the quality of services. The initiative's work is collaborative. It seeks to strengthen current accountability efforts by companies, civil society, and the media that will lead to changes in sustainability performance.



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**Neighborhood environment and income: Designing sustainability disruption strategies to combat environmental and economic risks**

Transportation is the leading cause of environmental pollution, greenhouse-gas emissions and climate change. Efficiency gains in transportation service delivery and energy use offers only a short term solution to growing urbanization and expectant transportation demand. Urban design, land-use planning and zoning interventions offers a more realistic solution towards environmental and economic sustainability. Integrated land use and transportation planning paradigms advocates mixed land use, walkable neighbourhoods and transit-oriented development. It is essential to know the characteristics and determinants of such integrated paradigms which promotes sustainable modes of transportation, facilitates mobility and provides accessibility. This paper provides an empirical analysis to understand the factors affecting walk trips using a 126 household survey from Mumbai Metropolitan Region. Logistic Regression model is used to model walk trip frequency as a function of socio-demographic and built environment variables. The results provide insights into designs for walkable neighbourhoods.





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## Sustainability Disruption For Mitigating Social Economic And Geopolitical Risks

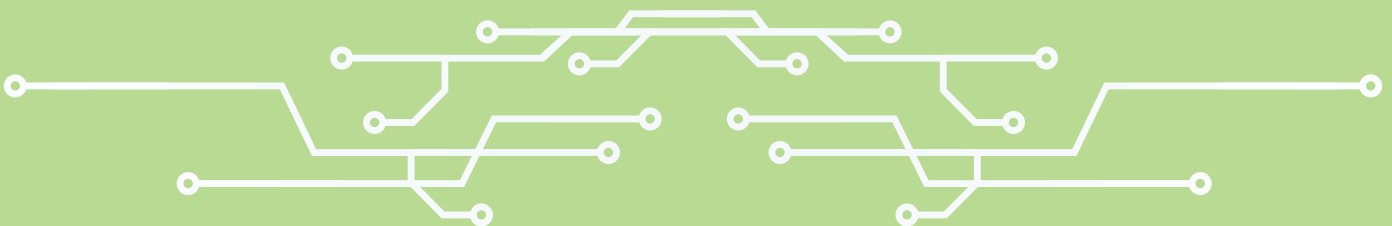
The natural disruptions and hazards are the major concerns today and these problems cannot be solved in isolation. So, more sustainable approach to business is becoming mainstream in organizations. Organisations now are focusing on sustainability initiatives. These included focus on environmental concerns by preserving biodiversity and offering products that have less environmental impacts. Thus researchers have suggested that a sustainable business policy can give an organization a competitive edge. Sustainable approach to business can be done with alignment of the organizations, social, environmental and financial objectives to measure the overall performance. Managers worldwide with strong focus on sustainable business are starting to adopt new ideas that they can manage to serve a society that strives to restore ecological health and rejuvenate the environmental, social and economic system. Sustainability programme operating in the organization value long term strategy that have ample scope to opt for both long term and short term initiatives.



# Theme 2

## Sustainability Disruptions for Restoring Biodiversity and Ecology

- Web of Life and Models of Symbiotic Living
- Learning from Nature
- Resilience to Climate Change
- Restoring Aquatic and Coastal Ecosystems
- Sustainable Energy for Future





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*She is expert in Nanotechnology, Biomimetics and Tribology. From 2008 until 2015 she has been living and working in Malaysia, since 2016 she is back at her home institution, the Vienna University of Technology. Prof. Ille is associate editor of the IMechE Journal of Mechanical Engineering Science (SAGE Publishing, London, UK), editorial board member of various scientific journals, author of two books on biomimetics and nanotechnology and editor of a book on biomimetics by Springer Scientific Publishing. Since 2011 she has been scientific advisory board member regarding nanotechnology for the Lifeboat Foundation, a US American think tank safeguarding humanity. Her research interests comprise the use of nanotechnology and biomimetics to address global challenges for humankind.*

*She serves on various international strategy boards. She has been acting as reviewer and advisor for agencies, universities, research institutions and public bodies. Prof. Ille is doing extensive public science outreach work and her professional activities are widely covered in the media. She loves to go on rainforest expeditions with her students, who come from different cultures and different fields (Europe & Asia, physics, engineering, biology, veterinary medicine, applied arts, fine arts). Her research interests are located at the interface of biology, engineering and the arts, systems thinking and nanotechnology. She has experience in various expert panels, including the Science Advisory Board (Arlington, USA), the Strategy Board of the Austrian Center of Competence for Tribology (Wiener Neustadt, Austria), QS and THES University Rankings and the ISESCO Expert Panel on Nanotechnology.*

## Living in Balance – New Ways of Cohabitation with Nature

Our modern society is developing fast. Within a few millennia people evolved from a life within nature toward a life in an isolated, technology-based society. The rewards of innovation resulted in a reduced infant mortality and a higher life expectancy. The resulting population growth, in combination with an increase of individual resources consumption, caused an exponential burden on our world's ecosphere. Nature is taking an irreversible damage and – even worse – the increased metacentric distance between our society and nature, made most people insensitive towards the ongoing disaster. Systems theory is showing that any system will grow until all resources available are used up. In the case of mankind not a limit in food or living space is reached, but the limit of the global environment to support our whole system. The results of this failure could be grave.

The Living in Balance approach aims to counter this lack of awareness and to change the perception of nature in our society. A starting point here will be new ways of learning from nature and initiatives to bridge the gap between our urban structures and nature. The goal must be not to exclude nature from our society but to live with it and appreciate it – a Cohabitation with Nature. The presentation will show how the ongoing alienation between man and nature developed and how countermeasures to preserve ecosystems and biodiversity could look like.



## Dr. M. Nadarajah

Chair Professor, Centre for Humanities and Compassion Studies  
Xavier University Bhubaneswar

*Dr. Nadarajah (Nat) earned a Ph.D. in Sociology from Jawaharlal Nehru University (JNU), New Delhi in 1993. He started his work life in the squatters of Chennai, India in the 80s. Since then, he has worked in many capacities and positions in a number of initiatives covering consumerism, environmentalism, philanthropy, pre-school education, people-oriented design, process management, urbanism, agro ecology, spirituality, and sustainability. Nat is presently involved in implementing the International People's Agro ecology Multiversity portal (IPAM). It is meant for small farmers, fisher folks and indigenous people involved in agro ecology. A pioneer of the Global Centre for the Study of Sustainable Futures and Spirituality (GCSFS/www.gcssfs.org), he is also now in the process of engaging with institutions to explore futures emerging from the critical understanding of the relationship between sustainability and socially-engaged spirituality in addressing critical planetary challenges. Nat has several books and documentaries to his credit. His doctoral thesis was published as *Culture, Gender and Ecology: Beyond Workerism* (1999). His responses to politics and culture in Malaysia was published as *Another Malaysia is Possible and Other Essays: Writings on Culture and Politics for a Sustainable World* (2004). He co-edited the book *Urban Crisis: Culture and the Sustainability of Cities* (2007) for a three-year project on urbanization by UNU, Tokyo. Between 2005 and 2006, he was an Asian Public Intellectual (API) Fellow with a Japanese Foundation. It resulted in a book on sustainability and spirituality, *Living Pathways: Meditations on Sustainable Cultures and Cosmologies in Asia* (2014). Presently, he is working on two pictorial books. One pertains to Indian Malaysians – *Protest, Prayer, Peace: Visual Disclosures of the Indianans of Malaysia*. The second one is part two of *Living Pathways* (mentioned above). It captures pictorially *Ways Back to Nature*.*

*Nat is presently located at Xavier University Bhubaneswar. But he also works from Kuala Lumpur, Chennai, and Coimbatore in his effort to build the Centre for Humanities and Compassion Studies.*





**Mr. Yeshwant Rao**  
MD and Co-founder, Oriano Solar



*He is the Managing Director and Co-founder of Oriano Solar (orianosolar.com), a leading turnkey solar solutions and EPC company, supplying clean solar power to consumers and helping businesses to reduce their energy cost. Oriano has 105 MWp of solar PV projects under execution. Oriano has installed 75+ MWp of utility-scale projects and 10+ MWp of Rooftops for Commercial & Industrial consumers.*

*In June 2017, Oriano won "Solar PV EPC Company of the Year 2017 - Utility Scale (Less than 50 MW) – Gold" awarded by India Solar Week Excellence Awards. Oriano was also awarded "Energy Startup of the Year" at the Entrepreneur India 2016 Awards and "TECH30 company of the year" at TechSparks 2016 by YourStory. Recently in March 2017, Oriano Solar raised Series-A funding round from SIDBI Venture Capital's Samridhi Fund. Yeshwant has 24+ years experience in International Business, Marketing, Telecom Components, Solar Thermal Power and Solar Photo Voltaic. He is a Chemical Engineer with an MBA in Marketing from NMIMS, University of Mumbai.*

## Sustainable Energy for Future: Driving Solar Energy Transformation

### Drivers for Sustainable Market for C&I segment in India

- Plant Performance Data to be available with banks
- Quality of Plant from design to execution
- Monitoring agencies to help Govt. bodies in ratings

### Enablers for C & I (Commercial & Industrial) market in India

1. Opex model - Many developers have started offering in Opex model, which makes adoption faster for C&I consumers without making any investment
2. Capex model - In Capex model, the price of the solar system is down with payback of less than 5 to 6 years. So, this has made the market attractive.
3. Awareness - Awareness about solar energy has increased in the market, due to which consumers are aware of cost economics and environment benefits of solar energy system and are actively looking at solar installation.

### Challenges hindering C & I Adoption

- Quality of Plant  
For bank financing, one of the key factor is the plant performance, which is mainly dependent on the quality of the plant.
- Financing  
Financing is a challenge as many banks still not much familiar with solar performance and have less data available which is shared.
- Risk of the sector  
If the plant is not installed up to the quality, it will lead to poor performance of the plant and this will increase risk for the solar sector as seen by the banks.



## Dr. John Hall

Assistant Professor, University at Buffalo, New York

*He completed his undergraduate degree in Mechanical Engineering at the Missouri University of Science and Technology, where he was recognized as a General Motors Scholar and ASME International Gas Turbine Institute Scholar. He subsequently worked in industry gaining 20 years of combined experience in the power generation, automotive, robotics, and semiconductor fields. Dr. Hall held senior-level positions in design, manufacturing, maintenance, and reliability engineering and is a licensed professional engineer. Following his work in industry, he completed the Master and Doctoral degrees in Mechanical Engineering at The University of Texas at Austin. During this time he was awarded a Cockrell College of Engineering Fellowship. His research concentrates on design methodologies and novel control techniques that promote sustainable systems. A critical element of the studies is simulation modeling of time-dependent multidisciplinary phenomena. Key aspects of the work are system adaptability, maintenance, reliability, and lifecycle analysis. Dr. Hall is interested in the applied area of renewable energy systems. He has developed innovative design methods that promote the productivity and longevity of wind turbines. His work has been published in ASME journals and recognized with distinction at the International Design Engineering Technical Conferences.*

## A Mathematical Framework For Microgrid Scalability To Adapt To Increases In Energy Demand Over The Life - Cycle

Sociotechnical systems encompass the interaction between people and technology. These structures are studied to increase design productivity. As technology evolves, greater improvements within communities can be achieved. Limited focus on the adaptive design of these systems impedes the success of the sociotechnical systems. This paper presents a micro-sociotechnical system involving a smart microgrid in a developing community. Microgrids enable electrification of geographically scattered regions. Access to energy improves the quality of life in the developing world. Still, the use of microgrids introduces a new variety of disruptions that hinder sustainable development. One of the challenges is related to microgrid scalability. Consumer demand inherently increases after the system is constructed. Currently, there is no method for adapting the microgrid design to the changes in demand. This presents a problem because demand increases over time. Hence, there is a need for a mathematical framework to strengthen the design process in terms of adaptability. The work presented in this paper lays the foundation for the development of the mathematical framework. We create a demand model to predict the energy use for a composite rural village using MATLAB. The predicted demand requirements are incorporated into a series of microgrid models using the HOMER Energy software. The resulting information is used to understand how the microgrid will need to evolve to support the required demand. Through this process, it will be possible to devise the mathematical framework, which will support optimal microgrid design with provisions for increased capacity.



## Mr. Abhishek Goyal

Senior Manager, Tata Sustainability Group  
Tata Sons Limited, 2nd Floor, Army Navy Building, Fort | Mumbai

*He is a part of the Environment Services team at TSG. He has a Master's degree in Environment Economics and Management from University of York, UK, and a Master's degree in Business Administration from Indore University.*

*Prior to joining TSG, Abhishek was with McKinsey & Company as an Analytics Specialist in their Sustainability and Resource Productivity practice. He has significant experience in the area of greenhouse gas (GHG) abatement cost curves for countries, cities and corporations. He has also worked with Ernst & Young's Climate Change and Sustainability Services where he was working on developing carbon reducing projects under the Clean Development Mechanism (CDM) of the Kyoto Protocol. Abhishek has also worked on multiple projects related to sustainability reporting advisory, assurance, training and capacity building programmes across varied industry sectors.*



## Climate Change Resilience

Climate change is arguably one of the most complex challenge mankind has ever faced. There are a multitude of scientific studies pointing to the fact that average global temperatures could rise by roughly 2°C by the end of this century. But that is still a distant future. The more alarming fact is that the frequency and severity of extreme weather events has been consistently increasing over the last few decades and human beings are already facing the impacts of climate change. Almost all of this climate change can be attributed to increased concentrations of greenhouse gases (GHGs) from human activities.

Apart from extreme events some of the other climate change related risks include - reduced agricultural productivity, increased heat stress for workers in outdoor environments, loss of livestock, increased incidences of vector borne diseases, enhanced water stress, floods in some areas and droughts in others etc. Like many other things in life, the impacts of Climate change too are extremely biased against the poor as it is they who are the most vulnerable to these impacts.

So it is quite clear that while it is important for mankind to sincerely work towards reducing the emissions of GHGs which are the principal cause of climate change, it is equally important to adapt to the various climate impacts to which our planet is already committed. An effective climate change adaptation strategy would need policy makers, civil society and the corporate sector to make co-ordinated efforts to build resilience in the communities that are most vulnerable to climate change.



### **Dr. Abinash Mohanty**

Project Director, Centre for Environment, Energy & Climate Change (CEECC), ADRI under the aegis of Ministry of Environment, Forest & Climate Change, Government of India & Research Fellow Centre for Nano technology and Advanced Innovations, Technical University of Liberec, the Czech Republic under Slovakian-EU federal support.

*Dr. Mohanty holds a patent for designing water decontamination fluoride & boron filter under USPTO i.e. United States Patent and Trademark Office. He works on methodology designing for integrating SDG's into policy frameworks for climate change mainstreaming. He is also a resource consultant for DFID- Climate Change Innovation programme for training key Government Functionaries of different countries on Climate Change & Environment framework. A Researcher in Climate Science and Dalai Lama Fellowship Awardee 2016 from India wherein collaborating across differences and Designing Ethical leadership systems are his key endorsed skills. His research interests include working on the SDG's interface designing, Hydrological prospects of rivers at a surface and sub-surface flow network system with Climate Change modeling and remediation designing modules. He has been a Resource Consultant for Ministry of Housing Urban Development and Poverty Alleviation, Government of India for affordable housing with an implementation module designer of clean green technology adoption.*

## **Climate Change And Environment Variance Tool For Strengthening Climate Change Cooperation & Governance Among Nations. A Narrative From Adoption To Implementation Of The Framework In Climate Change Innovation Programme**

In India, the primary tool for Climate Change planning is the State Action Plan on Climate Change (SAP). Most states have now prepared approved SAPs, which describe the climate change projections and risks for the state and list the priority actions that the state government proposes to undertake to adapt to climate change, and to contribute to reducing global greenhouse gas emissions. Many States have done some provisional work on the financial implications of the SAP. However, this work has mostly been done on an ad hoc basis and has typically considered the potential costs of full implementation of an action, with little consideration of the level of resources that are likely to be available, either from the state budget or from central schemes and any new opportunities from climate funds. In response to this challenge, there is growing Indian and international experience with the use of Financing Frameworks for climate change action plans, especially where these focus on adaptation, rather than mitigation, which is the case in most developing countries. The financing frameworks typically start from an understanding of the potential loss and damage caused by climate change, review the existing finance and scenarios for future financing and use this to guide financing allocations and to show how the action plan will protect economic growth. The Paper also intends to provide an initial exploration of opportunities and options for reducing vulnerability to climate change impacts and mainstreaming adaptation through the lens of Sustainable Development Goals.



## Mr. Christudas KV (Chris)

Director, ESAF,  
Lead Adviser, Sustainable Banking, ESAF Small Finance Bank



*He started his innings as the head of HR & Administration for three years. Then he took up the call of setting up the energy Dept which later grew as the present day Environment Department of the organization. He has been instrumental in scaling up the energy initiatives of ESAF. He has been the leader for the Carbon Credit program. In addition to this he is also heading the project of Forming Farmer Producer Companies (FPC). Seventy FPCs are being formed by ESAF in the states of Kerala, Tamil Nadu, Karnataka and Chattisgarh under his leadership.*

*Prior to joining ESAF, Chris worked with State Govt owned three chemical companies for 30 years. He has worked in Quality control, Research & Development, Technical services, Engineering Projects, Environment departments in various capacities. He was also an auditor for the quality management systems such as ISO 9001, 14001 & OHSAS 8001 standards. He resigned from the Govt services in 2008 to join ESAF for his accomplishments in social domain. He holds a Masters Degree in Applied Chemistry (Fuel & water), Post Graduate Diploma in Industrial Pollution & control. He has also undergone number professional trainings during his career. He has also been invited into resource panels in both national and international conferences.*

## Famer Producer Organizations- Sustainable Disruptions

The impact of Small and Marginal Farmers (SMF) on land area, food security, hunger, livelihood, GDP is very sizable and critical. 38% of the land area is used for farming crops, livestock and poultry combined. Given the vast area for agriculture, its impact on biodiversity both in terms of threat and opportunity must be remarkable. The combined agri sector generates livelihood for more than one billion people. More than two million tonnes of pesticides are being used globally by the SMF which has become detrimental to the useful species such as butterflies; special ants etc. Around 13% of emissions that are responsible for global warming is also from agriculture sector. Gender inequality is predominant among them owing to land access limitations to the women in these households. Out of the seventeen SDGs, eight items - one, two, five, six, ten, thirteen, fourteen, fifteen are directly relevant and three, four, seven and eight are indirectly relevant.

Sustainable Development Practices must be adopted by the individuals rather than through top down approaches. Farmers consider changes as threatening intrusions that eventually would affect their survival. "Homogenous Small groups" are a confidence builder. Such famer local groups are federated and formalized into a producer company (PC). Pcs offer convincing transparency and participatory opportunities to the member farmers. 38% land area along with its custodian households, flora fauna, natural resources, produces, value chain, markets etc will come under sustainable practices provided the farmer Collectives thoughtfully engineer the change management. My experience is that the Farmer producer Companies are able to unlock the local potential of both men and women for the recreation of their habitats and opportunities on triple bottom line principles.



### Mr. Anil Kumar Bhuyan

Research Scholar, School of Management, Birla Global University, Bhubaneswar

*He completed his M.Phil in Commerce from Lovely Professional University, Punjab and presently is a research scholar of Birla Global University, Bhubaneswar. Mr.*

*Bhuyan has a good knowledge in applied econometric and behavioral finance and presented number of paper in national and international conference and published number of research papers in national and international reputed journals. His current areas of interest are social responsible investment & sustainable investment.*



### Dr. Ajit Kumar Dash

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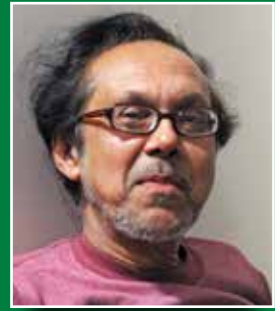
*Bhubaneswar. Mr. Bhuyan has a good knowledge in applied econometric and behavioral finance and presented number of paper in national and international conference and published number of research papers in national and international reputed journals. His current areas of interest are social responsible investment & sustainable investment.*

## Energy Consumption, Pollutant Emissions And Economic Growth In India: A Dynamic Causality Analysis

According to BP energy outlook, the energy consumption of India is set grow at 4.2% a year by 2035, which is faster than that of all major economies in the world. Today, India is the second biggest energy consumer in Asia and world's third-largest oil-consuming country behind US and China. It is projected that India's consumption of fossil fuels will be highest by 2035 overtaking China. The increase in energy consumption is the major cause behind increasing carbon pollution leading environmental pollution. Therefore, there is need of sustainable growth strategy by minimizing the dependence on fossil fuels and carbon emissions for inclusive and sustainable growth. In this context, the purpose of the study is to empirically examine the long run and causal relationship between energy consumption, carbon emissions and economic growth in India over the period 1971-2014 within a multivariate framework. The augmented Dickey-Fuller test (ADF), and Phillips-Perron test (PP) are used to test the stationarity and for the co-integration for Johansen co-integration approach for long-run equilibrium relationship followed by Granger causality approach in VAR model to explore short-run causality between energy consumption, carbon emissions and economic growth in India. The results of the Johansen Co-integration result indicate that the long-run equilibrium relationship between economic growth, energy consumption, and carbon emissions. Further, the Granger causality test results indicate that there is unidirectional causality running from GDP to carbon emissions and energy consumption in short run. This study will help to implement energy efficiency measures and conservation policies, to decreasing dependence on fossils fuels especially coal by promoting cleaner and carbon-free energy (wind, solar, biomass, hydro and nuclear) without reducing the energy consumption.



**Mr. Dhurjati Mukherjee**  
Senior Consultant, SAHAJ



*He is writer and journalist, writing and speaking on developmental and environmental issues from the Gandhian perspective for the last three decades. After retiring as Deputy Director & Grievance Officer of Geological Survey of India in December 2014, he joined Srei Sahaj e-Village Ltd. as Sr. Consultant working on developmental issues and social audit. The author is a regular columnist with INFA, India's oldest news and feature agency, and is also a Guest Faculty with many educational institutes. Apart from this, he also connected with various NGOs and is the Secretary of State Habitat & Environment Forum (SHEF).*

## **Destruction of Ecology & Environment: Alternative Gandhian Approach Imperative**

Sustainable development has been rightly emphasized for the last few decades as it was thought to be the most judicious approach for ecological balanced development. As is well known, it is a process for meeting human development goals while sustaining the ability of natural systems to continue to provide the natural resources and ecosystem services upon which the economy and society depend.

Coming to India, the environment is being threatened as ecological disruptions are taking place in various ways and there is an ecological crisis in the country that needs to be tackled effectively. Though one cannot deny the fact that environmental awareness has been growing, the dimension of the looming crisis has threatened our ecological system. The so-called modern civilization is destroying the tropical forests, raping the environment, destroying livelihoods of poor farmers and turning human lives into well trained slaves, specially in Third World countries, including India. And Gandhi had the foresight to recognize the imminent danger threatening the existence the Earth as a result of environmental destruction and violence and references are found in his famous book, Hind Swaraj. He predicted "we all have to die with it (modern civilization), if we do not act, that is, if we dot do our duty".

For a country like India, there is an imperative need to adopt an alternative approach to development to make it really sustainable based on the Gandhian model of utilizing nature only for basic requirements of life and living. The craving for unlimited pleasures accelerated industrialization leading to rapid depletion of non-renewable resources and the problems of pollution and ecology. Gandhi pleaded for a technology and economics within the framework of ecological balance of a holistic paradigm. He tried to foster a life based on simple living and high thinking. Thus the Gandhian model of development is based on renewable resources like animal, water, oil, solar power and less on non-renewable sources, which does not lead to environmental pollution or disturbs the ecological balance. How should one go about at this juncture, at least in India?

Thus the answer is to follow ecological economics for a sustainable approach and counter the ecological threat, integrating key elements of ethics, quality of life, environment and community. A civilization that is ecologically balanced has to be the strategy of all countries, including India. Humans have to learn to care about what happens to other species and ecosystems that is, to treat nature as if it mattered. What is more important at this juncture is that humans can no longer treat the environment and other species as mere objects but take care of them for their own well being.



### **Mr. Jamini Ranjan Meher**

(M. Phil Scholar), Department of Business Administration, Sambalpur University, Odisha

*His research area is strategic HRM, Work Life Balance and Knowledge Management. He is currently focusing on the research of various dimensions of Work Life*

*Balance for sustainable HRM practices in Indian industries.*



### **Dr. Rohita Kumar Mishra**

Assistant Professor Department of Business Administration, Sambalpur University, Odisha

*He has more than 10 years of experience in the field of teaching and research. He was associated with many front ranking B-school of India. Dr.*

*Mishra has more than 30 research articles to his credit in the area of Efficiency measurement, Sustainable supply chain Management, Data Envelopment Analysis, marketing modelling, Talent Management and Sustainability to several leading journals of repute.*

## **Sustainability Of Workforce Through Work Life Balance**

Sustainability is a pragmatic word that initiate the discipline and development of contemporary drive. It is “an effort to preserve natural resources and avoid waste in operations”. Sustainability in natural and physical resources are the distinct area of exploration and practice. Starting from the natural resources to man-made elements, they need their longevity to prove themselves how good they are. Likewise, in human dimension the sustainability plays an important role to justify the strength and innovativeness. In every organization the human capital is the living one and its sustainability is regarded as the ornament of the organization. In driving “physical sustainability” businesses need to take into account “human sustainability” in managing business. Conservative attitudes of owners, leaders and local superior shapes the work-life experiences. Work Life Balance (WLB) is a dynamic phenomenon. It is a subject which is concerned to almost all the executives and non-executives in the organization. WLB is balancing the priorities of career goals and family goals. Career goals indicate to the life of work place where as family life focuses on the beyond its work place of an employee. The life of work place may be the set of work force, organizational support, satisfaction level, career prospects, commitment, and performance. Work place environments are the ability of employees to successfully manage their professional and personal lives’ boundary have been impacted by the organisational context in terms of “formal policies, job design, social support for work-family strategy choices and prevailing cultural expectations”. The recent past is a witness to major changes in Indian workplace and families. An increasing number of workforces, participating in the workplace have brought about uniformity in the workforce and consequently a greater need for balancing the work and life of employees. Work-life balance has been shown to have positive outcomes, such as low turnover intention, improvement of performance, and job satisfaction. Equity and justice are another key enabler of work force sustainability. Equity is treated as a construct with its own illustration, trying to capture how the opportunities are presented to individuals in the organization. Although, as expected, Equity is exceedingly associated with Justice, both concepts are the antecedents to commitment in their own statute.





### **Dr. Manoranjan Mishra**

Assistant Professor, Department of Geography,  
School of Science, Gangadhar Meher University, Sambalpur, Odisha

*He has been a Research Fellow from Bintlu, University Putra Malaysia & Asian Pacific Network. Some of his area of interests are Climate Change Modeling, Interaction between Nature and Society, Culture and Landscape, Hazard and Vulnerability Assessment of coastal Processes, etc. He visited nearly 10 countries for academic purposes. His articles are published in leading journals. He has received various awards & fellowships from India & abroad.*



## **Analyzing Order And Disorder Of Socio-Ecological Rural Landscape Changes In Mountain System: A Case Study Of Drought Prone Block Of Namthang, South Sikkim**

Mountain landscape sustainability is essential for the survival of the global ecosystem. It also occupies one-fifth of earth surface and is home to one-tenth of the global population. It also provides goods and services to half of the humanity. This system is undergoing changes in the form of systemic changes at the global scale and the cumulative changes at the local scale. These changes are globally pervasive and include integration of social, political and economic relations. Thus, the most critical problems faced by humanity in the 21st century include global warming, global pandemics, regional water shortage, financial collapse, terrorism and global energy demand. Further, we live in the planetary system - interconnected global systems, where massive social and environmental failures in one region threaten sustainability in another region. Again, Sikkim Himalayan regions are characterized by highly complex socio-ecological systems, with rich cultural diversity linked with equally rich biological diversity. The cultural landscape has undergone notable changes in the last few decades. In particular, conservation of the cultural rural landscape of the highlands constitutes a complex task that leads to rural abandonment in one hand and agricultural intensification on the other. This generates a new type of landscape which is apparently less appealing than the traditional one. The ethnic societies living in a highly heterogeneous mountain environment have their own social, economic and cultural attributes, any change in form of knowledge or innovation or developmental initiative has to be based on a value system of the household decision to understand, appreciate and adopt. Modifications in the social structure and processes affect and alter the rural environment so that ecological and socio-economic information must be integrated for use as a basis for policy-making in this region. Thus, mountain landscape sustainability can be analyzed by using order and disorders of a socio-ecological landscape where order implies well-defined boundaries, causality, and predictable outcomes but disorders are about shifting boundaries, uncertain causality, and unpredictable outcomes.



### **Dr. Nisha Pandey**

Associate Prof. & Chairperson Entrepreneurship Cell and Women development cell at Vivekanand Education Society Institute of Management, (VESIM) Mumbai

*Dr. Pandey has worked in various inter-disciplinary research projects in several Institute of International repute like Indian Institute of Technology, Bombay,*

*Management Development Institute, Gurgaon, Harcourt Butler Technological Institute, Kanpur. She has presented and published more than 30 papers in national and international conference, forum and Journals. Presently, she is associated with a collaborative research project on "Understanding Institutional Framework of Social Entrepreneurship for Integrated Social and Economic Development" in association with Sri Aurobindo Society, Pondicherry.*

### **Dr. Satish Modh**

Director, Ves Institute Of Management Studies And Research (VESIM), Chembur, Mumbai



*He is one of India's leading researchers in the field of business ethics and strategy.*

*In his long and distinguished career with Air India, he has been elected as General*

*Secretary of the Aircraft Maintenance Engineers Union, Hon. Secretary and Chairman of the Aeronautical Society of India, Mumbai Branch. He was invited to speak on ethics and Bhagavad Gita at various universities in USA. He has been a member of Association for Practical and Professional Ethics, Indiana University.*

*He has written a pioneering book titled 'Ethical Management' based on Indian value system. He is also the author of a popular book 'Discover the Arjuna in You' published by Jaico Publishers.*

*Prof. Modh was given Dewang Mehta award for outstanding contribution to education in 2014.*

## **Managing Disruption Through Social Entrepreneurship For Sustainable Socio-Economic Development**

This study aimed to explore the contents of "ECOPRENUURSHIP" a case study of Gram Power, a Social Enterprise with technological innovation. The Social Enterprise "Gram Power" is Energy efficient Smart Micro grids provide reliable electricity to rural households with an affordable prepaid purchase mode. Key Energy plays a vital role in the socio-economic development and welfare, mainly due to dependency of indispensable amenities on electricity. However, matter of concern is the gap between demand and supply of developing country domestic power needs and inadequate supply. One of the cases is Indian subcontinent, where more than 50,000 villages still not have access to uninterrupted source of electric power. In term of population, it is about ~ 30% of total population. Such a statistics is not much different in many of the neighboring country. Gram Power, a social enterprise of India, is providing a smart metering and affordable solution in areas where the extension of existing grid supply is economically not viable. India's first solar powered micro-grid in state of Rajasthan was established by this initiative. The details of changes, social transformation, and operational sustainability of such a community engagement model has been discussed in this study.



### Dr. Sukanta Chandra Swain

Associate Dean, School of Humanities & Social Sciences,  
KIIT Deemed to be University, Bhubaneswar, Odisha, India



*He is a Post Graduate, M. Phil. and Ph. D. in Applied Economics besides a Law Graduate. He has more than 23 years of experience in teaching Post-Graduate and Doctoral Programs at different institutes and Universities of repute. Besides guiding research scholars in their doctoral degree, he has been considerably contributing to the intellectual/research world in the form of publishing research papers in refereed journals of national and international repute, taking up consultancy projects, conducting Workshops, National Seminars/Conferences, Faculty Development Programs and Management Development Programs. In addition to being the Managing Editor of the IUJ Journal of Management, a blind reviewed bi-annual referred Journal of the ICFAI University Jharkhand, he has been the reviewers of five national and international refereed journals.*

## Sustainability Distortions in Indian Agriculture: a Study of Poor Farmers in the Outskirt of Ranchi (India)

India has been experiencing a panoptic structural change in its economy - with a paradigm shift from an agrarian economy to a service-led economy. Development of an economy owing to growth in any sector is good but trickling down of effect of growth that leads to economic development is not uniform across the sectors - primary, secondary and tertiary. While growth in primary sector, i.e., agricultural sector, easily trickles down towards economic development, growth in tertiary sector, i.e., service sector, mostly remains at growth level and trickling down happens exceptionally. Thus service-led growth is not sustainable for the demand side bottlenecks owing to dependence mostly on overseas demand. Moreover, sluggish growth in agricultural sector and hatred attitude of the rural population towards agricultural occupation is undoubtedly a cause of concern as it is the sector that feeds the entire population of the country. Developmental schemes of government has helped the rural population get food and some other bare necessities either free or with meager prices. That spoils the urge of some of the rural population to work and earn. Rest of the rural population who are still engaged in agricultural activities are getting demotivated and discouraged for either crop loss owing to exogenous factors or not getting the subsistence price for their produce. On this backdrop, this study is undertaken to unfold the precarious conditions of the vegetable farmers in the outskirts of Ranchi (Jharkhand, India), particularly during harvesting - as a reflection of sustainability distortions in Indian agriculture. On the basis of the responses of the poor vegetable farmers, policy prescription in the form of minimum support price for vegetables has been made.



### **Dr. Sushanta Kumar Mahapatra**

Professor of Economics, Amrita Vishwa Vidyapeetham, AIMS, Kochi, Kerala

### **Mr. Jayaraman Chillayil**

PhD Scholar, Amrita School of Business, Amrita Vishwa Vidyapeetham Coimbatore, Tamil Nadu



*He has worked at Institute for Financial Management and Research (IFMR) and at JRD Tata Ecotechnology Centre, M.S. Swaminathan Research Foundation (MSSRF)*

*Chennai. He has collaborated in research projects supported various national & international organizations. He has worked as a Consultant to World Bank, Japan International Co-operation Agency (JICA). He has published his research ideas in Books, journals, edited volumes, conference proceedings and working papers. He is the recipient of prestigious Malcolm Elizabeth Adiseshiah Doctoral Merit Fellowship from Madras Institute of Development Studies, Chennai. Recently he has received the prestigious European Commission Post-Doctoral Fellowship (PDF).*

*He has 28 years of Industrial Experience and 2 years of teaching experience. Mr. Jayaraman was a FULBRIGHT SCHOLAR, at LAWRENCE BERKELEY*

*NATIONAL LAB, CALIFORNIA; under Fulbright Nehru Environmental Leadership program-2010 and is selected as the Principal Candidate for the Fulbright Kalam Doctoral Fellowship for year 2018. He is the winner of the State Award from Energy Management Centre, Govt of Kerala, 2010., Meritorious Award from BPCL, Kochi Refinery for "Energising Lives", 2009, and PS Gopinathan Nair Memorial Environment Award, 2013.*

## **Disruptive Changes in Building Energy Conservation: Sustainability through Design Thinking and Green Technology**

As we see a radical change in technology, technological risks are perceived to be critical challenge. The building sector in India is experiencing an unprecedented growth consuming 38% of the primary annual energy consumption and 31% of the total annual electricity consumption. Within commercial sector, the current built-up area is expected to increase by approximately 60% in next 20 years and India will become the world's third largest construction market, adding 11.5 million homes a year. The past decade has seen significant advancement in the availability of latest technology and building materials, development of credible research institutions, laboratory and R & D facilities, uptake of green building rating programs and enlargement of pool of energy-efficient building experts and execution of many capacity building programs to raise awareness about ECBC. However, all these positive ecosystem building activities have still not led to significant implementations in a time bound fashion (Mohini Singh, 2017). Even when we foresee a threat of Artificial Intelligence (AI) replacing humans, causing major risks and disruptions in the world, we need to understand that it is the human behaviour that needs a greater disruption to face these challenges. As rightly indicated in the introductory theme of the conference "the solution to manage such disruptions shall be built on the foundations of "sustainability and educational institutions play a significant role in promoting newer sustainability based values, resource efficient models and technological advances".

This paper is focusing on this most significant energy sector viz Building to analyse how a Design thinking process coupled with Green Technologies can make a disruptive change in the field to ensure sustainability.



### **Dr. Susil Kumar Sarangi**

Associate Professor, Balaji Institute of Telecom & Management (BITM), Pune. Maharashtra



*He is an MBA from SMIT (Berhampur University, Odisha) since 1992. He has 15 years of experience in multinational corporate sector and 7 years of teaching experience. He is an associate of Insurance Institute of India. He teaches Marketing, HR, Strategic management and taking classes on Soft skills/ Pre placement. He has published 18 articles in various national & International journals and authored 3 Books till date. He is a corporate trainer for various companies on various relevant subjects .*

## **Sustaining Power of Rural & Agrarian sector for Overall Growth of India's Human Development Index**

Managing the linkages between agriculture, poverty and nutrition areas are as critical as we look towards providing with an opportunity to reach their full potential especially to children. The new agenda of sustainability should also have a goal that explicitly focuses on improving agricultural systems and addresses rural development in an integrated manner. These features of sustainable agriculture should be delivered as a package, and no single feature should predominate over the others. Economic challenges to sustainable development include slow economic growth, globalization, mechanization, excessive reliance on foreign direct investment, job losses, and inequitable distribution of wealth etc. Many rural areas in developing countries like in India often lack agricultural extension services, processing capacity, credit, roads, irrigation, transportation, energy, and storage infrastructure. For urban and rural populations alike, the lack of adequate income is one of the main obstructions to overcoming hunger. This is particularly true for women whose challenges are exacerbated by less access to land, scarce credit, and lower levels of education. Chronic hunger is fundamentally not an issue of just more food; sometimes it is an issue of access. The agricultural sector is different from other economic sectors in a number of ways. Here activities are generally located in isolated areas with low population density and poor infrastructure. The complexity of the Gramya Banks and other such schemes needs to be reduced in order to lessen the expense associated with such schemes, and their long term viability can be ensured by linking the project early with existing credit unions or rural banks. International and national standards for organic products have been established and a certification system for organic food is now used in many countries. So it is now necessary to maximize the positive effect of this movement using consumer signals effectively. To improve reliability of certification on specialized products, including organic food, it is important to develop a reliable certification system. Beyond facilitating transfers from regions of surplus to regions of deficit – important in particular in light of increased extreme climatic events, such as droughts and floods, a reformed, non-distorted agricultural system is considered of paramount importance for opening markets for developing country exporters and contributing to improved rural livelihoods. Globally, corporate power has grown to easily rival the influence and effect of the state, in changing the dynamics of local and global food systems. This private power, while seeking profits, is also increasingly under pressure to work towards sustainable modes of production and processing as concerns about resources and supply availability increase and consumers are ever more aware of corporate roles and their impact on food and agriculture. Several of the world's leading food companies have made strong public commitments to sourcing products that are independently certified to be in compliance with public and private sustainability standards for contributing higher Human Development Index. This can be tried in India also.



### Ms. Sneha Krishnan

*She is currently working with London School of Hygiene and Tropical Medicine on a controlled, randomized trial in Odisha using a community based digital platform to establish linkages between agriculture-nutrition. However my interests and prior research and work experience was on disaster resilience, humanitarian programmes and climate change adaptation. My PhD evaluated Oxfam's response programme to build community resilience after disasters in Assam and Odisha. I have also worked with governmental and non-governmental agencies in humanitarian contexts in South Asia, working extensively with agencies such as RedR India, UNICEF, Oxfam India and Christian Aid and Action Against Hunger (ACF) - UK.*

## Policies and practices in disaster resilience and sustainability in India

There are numerous international frameworks - The New Urban Agenda (NUA), Quito, in October 2016; 2015 Paris Agreement for Climate Action; Sustainable Development Goals; Sendai Framework for Disaster Risk Reduction. These have various areas of convergence and challenges especially with regards to implementation and policy-making. In India, The Disaster Management Act of India (Gol 2005) provides the overall policy framework and guides humanitarian NGOs to intervene in event of disasters is guided by the which was adopted as a policy. Resilience, is gaining currency in current policy discourse, emerging as a ubiquitous term in disaster risk management, an increasingly prominent concept in discussions about the post-2015 policy landscape but riddled with competing meanings and diverse policy implications.

The way disaster risks have been viewed in the past has changed greatly, from studying the direct impacts of hazards, to assessing vulnerability, to assessing responses (adaptation) and building resilience. Furthermore, any assessment of the scale and nature of urban risk depends on how risk is conceived: what hazards are included (including whether to include technological hazards, infectious diseases, violence and terrorist activity), how 'disasters' are defined and measured (and what data is available on this) and whether consideration is given to post-disaster risks. This talk will discuss how do existing mechanisms governing water and sanitation services in cities promote resilience? But there are so many different risks, each with particular impacts on health or incomes, assets and/or livelihoods. Using examples from Indian and Nepal, this talk focuses on WASH practices and processes in recovery initiated with the help of NGOs.



## Students of BBA, Trident College, Bhubaneswar



Anjali Sharma



Jogeswari Sethi



Diptimayee Mohanty



Ankita Nayak



Rashmi Kumari



Aditya Patra



Ankita Das



Arpita Nayak



Pritam Saha



Saishree Mohanty



K. Aswini Patro



Doly Singh



Banita Santra



Shruti Sahu

## Restoring Aquatic and Coastal Ecosystem for sustainable Environment

Aquatic ecosystem performs numerous valuable environmental function .They recycle nutrients ,purify water, attenuate floods ,augments and maintain stream flow ,recharge groundwater ,and provide habitat for wildlife and recreation of people. Rapid population increased in many parts of the country accompanied by intensified industrial, commercial, residential, agricultural development have led to the pollution of surface water by fertilizers insecticide motor oil ,toxic landfill, latches and feedlot waste. At the same time the water pollution and release of nutrient-laden municipal sewage effluent have increased water consumption thus reducing the flows available for direction of waste. The increased sediment delivery resulting from urban construction, agriculture and forestry has also resulted in greater turbidity and sedimentation in downstream channels ,lakes and reservoirs with attendant loss of water storage and conveyance capacity, recreational and aesthetic values and quantity and quality of habitat for fish and wildlife. Science priorities that are needed to understand the consequences of broad scale ecosystem modification can be cast within the strategic framework being used by water resources and Coastal and Marine Environment Research Subcommittee of committee on Environmental and Natural Resource Research .The priorities are :-

- Development of indicators of biological status and processes reflecting ecosystem health and integrity.
- The use of advanced in situ observation system coupled with application of remote sensing to provide insight on ecosystem behavior on appropriate time & space scales.
- Investigation of the effects of modification of land use and water flow and associated material fluxes and transformation watershed
- Research on the relationship of physical phenomena to ecosystem structure and function and the interaction of ecosystem structure and function .
- Research modeling and monitoring to support effective restoration or rehabilitation of degraded habitats and sustainable yield of coastal ecosystem
- Development of models and understanding behind them of atmosphere ,watershed coastal ecosystem interaction for use in ecosystem management.

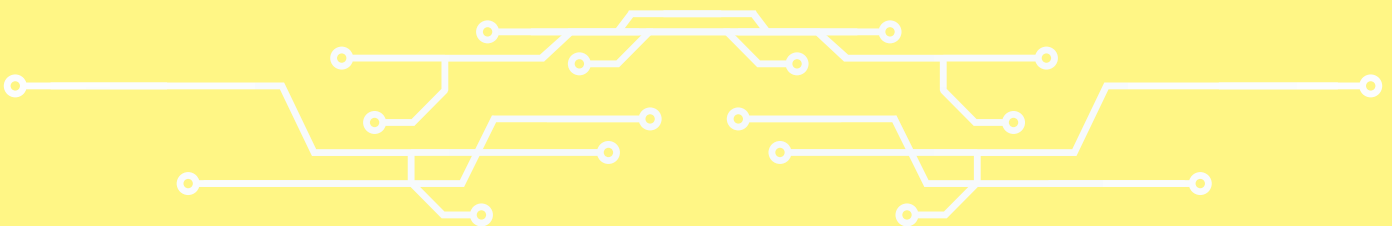




# Theme 3

## **Sustainability Disruptions for Mitigating Social, Economic and Geopolitical Risks**

- Circular Economy and Bridging Inequalities
- Democracy, Civic Space and Social Protection
- Resilient Human Habitation and Mobility
- Strengthening Cooperation and Governance
- Mitigating Cyber Dependency



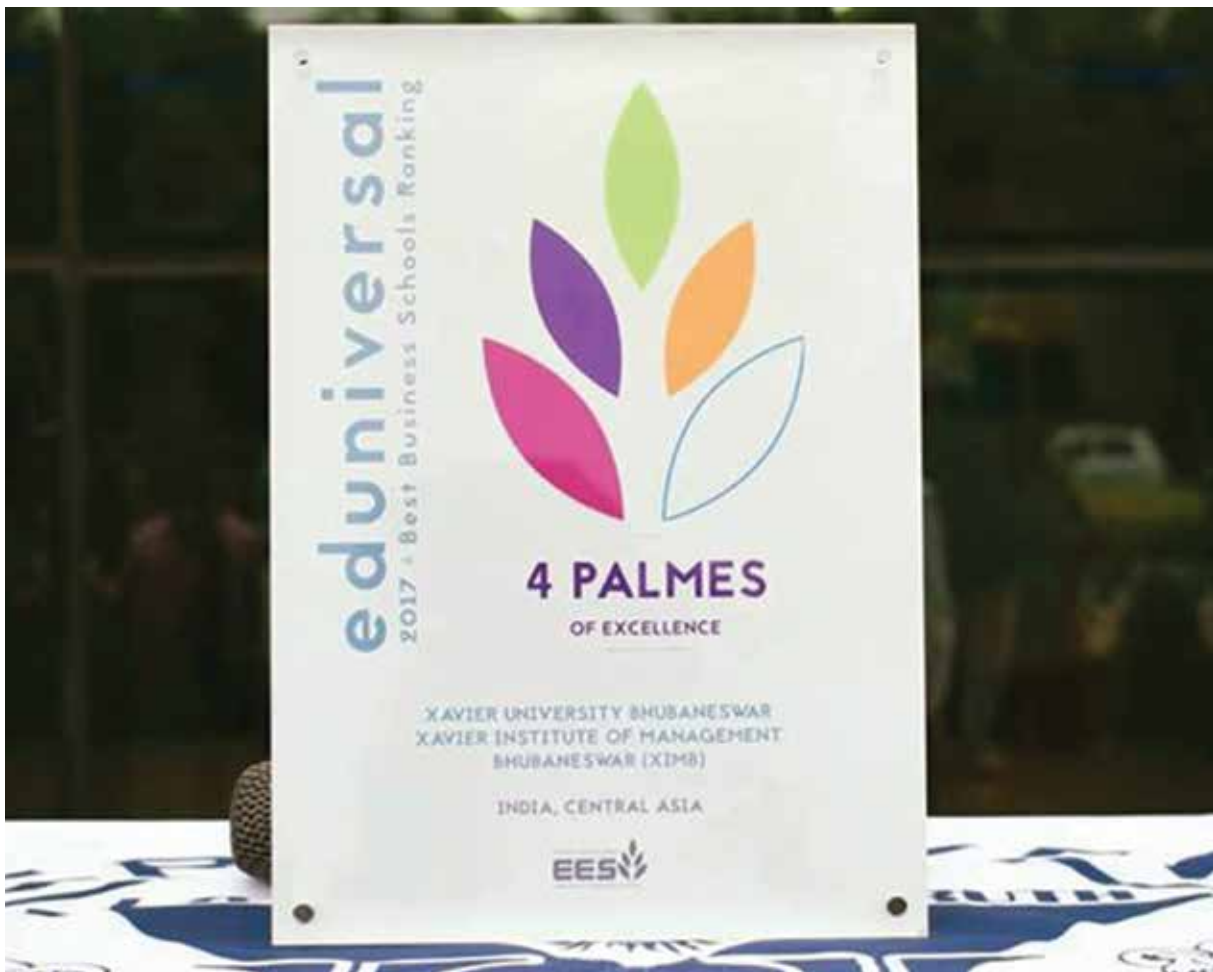


### **Mr. Andreas Bauer**

IMF Senior Resident Representative for  
India, Nepal, and Bhutan  
Biographical Information



*Andreas Bauer is the International Monetary Fund's senior resident representative for India, Nepal, and Bhutan. During his 15+ year career at the IMF he has worked as a mission chief and senior economist on a range of countries, mainly in Latin America and the Middle East. Before taking up his current position in New Delhi, he headed a unit in charge of international monetary and financial issues, and institutional strategy at the IMF's Washington headquarters. Earlier in his career, Mr. Bauer was an emerging markets analyst for Credit Suisse and held senior positions in the Ministry of Finance of Chile, including chief of staff to the minister. He holds an economics degree from University of St.Gallen (Switzerland) and an MA in Applied Macroeconomics from Pontificia Universidad Católica de Chile.*





## **Dr. Rambabu Paravastu** CEO, RSM GC Advisory

*Dr. Rambabu has been a thought leader in the Asian Sustainability and Climate Change movement and his previous roles include Managing Director at CantorCO2e Asia and Head of Sustainability and Climate Change practice in Asia at PricewaterhouseCoopers. He has advised ITC, various companies of Tata Sons and a number of multinational businesses in preparing sustainability reports and sustainability performance improvement.*

*Dr. Rambabu has over 35 years of experience in consulting, research and teaching in governance, sustainability, and climate change. He has led over 200 sustainability assignments sponsored by the Ministry of Environment and Forests (MoEF), Ministry of Science and Technology (MoST), World Bank, UNDP and various national and international business organizations.*

*He has been advising the Government of India and state governments in streamlining the environmental clearance process and has served on a number of Central Government initiated Committees and task forces to evolve standards and norms for environmental sustainability of industrial development. He has advised Indian Judiciary in much environmental litigation.*

*Dr. Ram Babu has advised many reputed businesses in India involving Corporate Sustainability or Social Responsibility, Strategic and Regional Environmental Assessments, Clean Development Mechanism, Design of flexible environment regulatory instruments and Life Cycle Assessment. The salient ones are setting up governance evaluation system for a major business group with interest in over 50 Indian companies; large clean development mechanism projects in India; Review of National Communication of India to UNFCCC; Sustainability Reporting advice to major corporations in India and Development of framework for Natural resource accounting in India.*

*He has chaired and participated in panel discussions organized by several national and international agencies, and was on the review panels of international journals. He has published over 100 research papers in reputed journals and conferences.*

## **Improving Ease of Doing Circular Business**

Circular Economy based on regenerative model affords a viable business opportunity to successfully tackle environmental priorities, drive performance, innovation and competitiveness, and stimulate economic growth and development. However, the global shift from one model of economy to another also have many unanticipated short-term but life changing and irreversible impacts especially on smaller companies on a micro-level. Thus, comprehensive knowledge on designing circular business models is needed to stimulate and foster implementation of the circular economy. Presently practiced CE business models are based on Circular Supplies, Resource Recovery, Product Life Extension, Sharing Platforms and Product as a Service. Some business models for the circular economy have limited transferability and also there is no comprehensive framework supporting every kind of company in designing a circular business model.

The regulatory barriers to CE initiatives including business models, are manifold and cover various guidelines, legislations and rules. At times these are conflicting, inflexible, ambiguous and most of the times lagging and inadequate implementation.

Considering the significant advantage that the CE offers to Indian economy it is important that the regulatory and promotional framework be built to improve the Ease of Doing Circular Business.

The panel will focus on:

1. Extent of potential of Circular Economy in India and CE business models practiced in India
2. Major barriers (regulatory, legal and finance) faced by CE businesses in India
3. Steps to be taken to Improve Ease of Doing CE business.



**Lt Col Monish Ahuja (Retd)**  
Managing Director  
Punjab Renewable Energy Systems Private Limited (PRESPL)



*He is an alumnus of the prestigious National Defence Academy, Khadakwasla, Pune. In a short span with the understanding of the Biomass IPPs and biomass supply chain management, he set up the first of its kind in India, biomass fuel aggregation and supply company PRESPL. He is known in the Biomass fraternity as a dedicated and knowledgeable leader. He has been advocating the barriers faced by Biomass based Project Developers at various seminars and forums and has been instrumental in impressing MNRE (Ministry of New and Renewable Energy Sources, India) towards the cause of biomass based industry in India. Lt Col Monish Ahuja (Retd) has been recognized with several eminent awards and is member of various committees like Bio-Energy Sub-Committee constituted by MNRE, Govt. of India, CII Committee of Bio-Energy, etc. He is spearheading the biomass movement in India with his ongoing efforts of harnessing the agro residue potential in India.*

## Sustainable aspects of Biomass Supply Chain Management & Development of a Bio-Based Economy

In Order to address the subject line PRESPL is focused to work on “empowerment of on rural youth and women making them employable for rural development on sustainable basis” through various ways to mitigate Social, economic & Geopolitical risk.

PRESPL is Empowering Rural Community through Adding Value to agri-Residues by sensitizing the rural population about utility of biomass and the hidden potential in it. In addition, our aim to empower the community, especially youth and women by organizing appropriate awareness campaign, training and skill development programs to enable them to appreciate and participate in the Biomass Supply Chain management. To address the key challenges our objectives at involving rural community in cleanliness and plantation drives for better health and environment.

PRESPL's Business model in Biomass supply chain helps in various ways to empower the rural economy to mitigate the global risk, few of them are listed below;

- Sensitization of rural population
- Generation of Job opportunities
- Opportunity to generate extra income out of crop residues
- Environmental Benefits
- Financial Inclusions
- Swach Bharat Mission
- Gender Equality

In order to develop biomass supply chain to Bio plants, identification and training of rural youth is done to develop them as “Village Level Entrepreneurs” (VLEs). VLEs are provided with necessary machinery such as shredder, balers etc. and are given responsibility of collecting biomass from individual farmers, processing and transporting to Bio plant. VLEs are paid at pre-determined rates for biomass supplied to the plant.

In short span of about 4 years, PRESPL has served more than 20 Nos. of biomass power and process plants and has supplied more than 3, 00, 000 MT of various biomasses which has offset about 17, 20, 000 MT of GHG emissions.

Due to its pioneering efforts, PRESPL has been awarded ‘Most Innovative Private Company in Renewable Sector’ by Power Today magazine in 2015 and the selection has been done by PriceWaterHouseCoopers (PwC).



### **Dr. Ashok K. Das**

Founder CEO, SunMoksha Power Pvt. Ltd.  
Bengaluru

*He has over 24 years of experience in semiconductor equipment and clean energy, smart microgrids, decentralized access to energy, smart agriculture, and smart sustainable villages. He has hands-on experience in development, implementation and operations of decentralized micro-grid projects for livelihood generation in villages. He has been working on the ground in Bihar, Jharkhand, Odisha, UP, Assam and Bengal addressing the real issues of energy access. He has developed a novel and comprehensive technology-cum-business solution for energy access, with remote monitoring and demand-supply management as key differentiators. Dr. Das' work in development sector includes his consulting assignment with several development agencies, such as, the World Bank, UK-DFID, KfW, ADB, SIDBI, CII-GBC, and USAID/CTI-PFAN. As founding-chair of TIE Clean Tech Forum, he has been very active in developing the entrepreneurial ecosystem for clean technologies and social impact across India. Prior to founding SunMoksha, Ashok worked for semiconductor equipment manufacturer Applied Materials in California, and then headed the India Operations of a fab automation start-up Aquest Systems. Prior to Applied Materials, he worked at MTCL on technology development to convert waste to energy. Ashok is a B.Tech. from IIT Kanpur and Ph.D. from Univ. of Southern California, Los Angeles.*

*D. Das has extensive experience in working with national and international organizations in development sector, such as, the World Bank, UK-DFID, KfW, ADB, UNDP, Ashden IRC CTI-PFAN, and Climate Parliament. As founding-chair of TIE Clean Tech Forum and a TIE Charter Member, he has been very active in developing the SME ecosystem for clean technologies. Prior to founding SunMoksha, he worked for semiconductor equipment manufacturer, Applied Materials Silicon Valley, for a decade. He then headed the India Operations of a fab automation start-up Aquest Systems, spread cross USA, Taiwan, and India. Prior to Applied Materials, he worked at a start-up, MTCL, to develop technology for converting waste to energy. He received a B.Tech. from IIT Kanpur, India, and Ph.D. from University of Southern California, Los Angeles, USA.*

## **Smart Solutions for Sustainable Socioeconomic Disruptions**

The United Nations Sustainable Development Goals are the guiding principle for economic, environmental and social development that is anchored in the notion of 'meeting the needs of the present without compromising the ability of future generation to meet their own needs'. The concept of sustainability is anchored in an integrated approach that takes into account the aspects of the environment (planet), economics (profit) and society (people) as the three fundamental dimensions. SunMoksha's solution and business model is anchored around these three pillars, in uplifting the condition of the poor and facilitating community development to mitigate socio, economic and geopolitical risks. Access to sustainable, reliable, and affordable energy; management of resources such as water, waste, and air; creation of 'micro-economic zones (MEZs)' and development of locally relevant skills play key roles. These, in turn, reduce the pressure on agriculture and land, and create the foundation for Smart Communities. SunMoksha has developed this holistic solution for sustainable, scalable, socioeconomic development of the rural hinterland. The model has been successfully demonstrated in Chhotkei village in Odisha, India, and endorsed by national and international development agencies. The solution is now being replicated.



**Dr. K. V. Gouri**  
CEO & Managing Director  
BASIX Consulting and Technology Services Ltd  
Hyderabad



*She is the Managing Director and Chief Executive Officer of Basix Consulting and Technology Services Limited. BASIX Consulting provides consulting and advisory services in the areas of financial inclusion and institution development for livelihood promotion in India and other developing countries. Dr Gouri has a Post-Graduate Diploma in Rural Management from Institute of Rural Management Anand (IRMA) and a Post-Graduate degree in Zoology, and PhD in Management from Golden State University of USA. She has over 30 years of work experience. She worked with Andhra Pradesh State Cooperative Oil Seeds Growers Federation, AGA Publications, Institute of Chartered Financial Analysts of India, Institute of Livelihood Research and Training before joining BASIX Consulting. She has unique understanding of academic administration and rich experience of working at the grassroots coupled with working in consulting and advisory roles.*

## Sustainable Solutions for Financial Inclusion-Technologies promoted by BASIX

Financial Inclusion entails access to finance by vulnerable groups such as weaker sections and low income groups at an affordable cost in a fair and transparent manner. Provision of these services by mainstream financial institutes through products that address the needs, through easy and convenient channels, create awareness through providing financial literacy lead to financial inclusion. Starting with having a no frills bank accounts, the full suite of financial services include savings products, credit products, remittances, micro insurance and pensions. Sustainable solutions using technology platforms is the only answer to reach huge population majority of who reside in villages. BASIX which is in the service of rural poor, marginalized and women over two decades has reached millions of customers and provided access to finance across the country and there by contributed to the efforts of socio-economic empowerment. Moving from conventional mode of providing financial services it is now offering digital financial services. IT Solutions such as Delphix Nano and Bank Soft served in offering efficient and express services and thereby increasing the outreach for the microfinance institutes. BASIX also offered these solutions to microfinance institutes in other developing countries. With the Policy Initiative that paved way for Banking Correspondent and Business Facilitator Model, BASIX entered into the domain of branchless banking with its own technological solution, ViTran. This sustainable solution has already served over 2 million rural poor across 30000 villages generating direct and indirect employment across 20 states. Using the technological solution and digital financial literacy models, BASIX is now focused on empowering women in creating awareness and imparting skills in using digital platforms to access financial services.



### **Dr. Beena Antony Reji**

Associate Professor,  
Aditi Mahavidyalaya University of  
Delhi

*She has been teaching at Aditi Mahavidyalaya, University of Delhi, for the past 20 years. M.Phil, Ph.D in Social Work from University of Delhi. Faculty In Charge of Global Fund Project at Aditi*

*Mahavidyalaya (SSR) from 2008 -2015. Working hand in hand with Government of India on the National AIDS Control Program. Networking with NACO, State SACS and other NGOs working in the field of HIV/AIDS. Organising and conducting training programs for HIV/AIDS counselors from North India working in Government and Non Government setting. Actively involved with IGNOU University, Developing their curriculum and course material. Author to books and articles in the area of Mental Health, Counseling, HIV, Children, Adolescents, Women development and Skill Trainings.*



### **Ms. Divya Reji**

*She is currently pursuing her undergraduate degree in Psychology from Indraprastha College for Women, University of Delhi.*

## **Positive Mental Health And Human Being's Sustainability**

Today's society is seen to be fostering individualistic behaviour. With the limited and scarce resources and its unequal distribution throughout, the world today is facing increased competition. There is also a steady rise in aggression and crime due to intolerance. Altruism is becoming a feature of the past. The only thought that strikes is, whether humans are progressing towards their own doom.

The present society is seeing an epidemic of mental health issues. WHO states there are approximately 450 million people suffering from mental health issues around the world. Mental and behavioral disorder contributes to 12 percent of global burden on diseases. Depression, anxiety and substance abuse contribute to the major mental health issues globally. Research studies in India show that the mental disorder prevalence is at 5.8 per cent of the Indian population.

Increased acts of aggression, intolerance, could be attributed to the state of mental health of the individual. It is crucial to have positive mental health to sustain as a healthy society. Mental health, just like physical health, is not primarily seen as the absence of mental illness. Rather, mental health is the positive sense of well-being. It is not fixed, and is influenced by life experiences, home, work and societal environment. The present article is a look into the importance of positive mental health of individuals in the society. Positive mental health is the need of the hour to sustain a sane world.





**Mr. Thomas Adaikalam**  
Head Volunteering, Department ,  
Kotak Education Foundation, Mumbai



*A Result oriented and Experienced Human Resources Strategist, Learning and Development advisor, excellent team leader and project manager with about 25 years of work experience in the Human Resources stream, teaching and training, best known for his successful projects in the Non Government sector. Thomas holds Masters in Political science and Public administration from Mysore University and Post Graduate Diploma in Business Administration (PGDBA) from St. Joseph's college of Business Administration. In addition he has specialized himself with several Diploma and Certificates in Human Resources including OD, Project Management, Coaching.*

## Beyond Blaming to Blooming

Following the clarion call of UN for the 2030 Agenda which seeks to guide Member States to transform their approach to achieve inclusive, people-centred and sustainable development with no one left behind, the Kotak Education Foundation (KEF) has strived hard to bring the desirable changes at various levels and through different interventions for fulfilling the educational outcomes with a more holistic, coherent and integrated approach in the slum schools that KEF chose to work.

### Guiding Premise

The critical at risks facts that drive the M Ward East in Mumbai are (Source: 2011 TISS report on M Ward East) :

1. The average life span of 39 years.
2. The Median income of Rs.8000
3. The graduates are less than 4.5%
4. The Human Development Index(HDI) is of 0.05

In addition the M East has several incumbent risks which come as stark reality. There is a population about 78% reside in the slums of the total population of nearly 9 lakhs in the ward. About 46% of the children do not attend pre-school and the infant mortality rate is 0.66.

KEF decided to intervene in 2007 by strategically addressing the long term change in the Ward through education interventions. The model that KEF decided to adopt include an array of anchor tenants impacting the school eco system. The initiatives include :

- School Leadership Initiative(SLI)
- Teacher training
- Parenting
- Health
- Scholarships for under served and meritorious children
- Spoken English program
- Vocational Skilling / Livelihood program

SLI is playing a change catalyst role in our partner schools. It is the fountainhead for reigning in a change in Noorul Islam school over a long haul period & attempts to transform the School Leaders (Secondary HM, Primary HM, Supervisors and Head Teachers) by providing leadership and managerial acumen over a period of 4 to 5 years & envisages close to 1300 hours of direct mentorship and path breaking exposure visits.

The entire program rests on evidence based progression of the School Leaders An attempt is being made here to capture the progress and change in school environment driven by implementation of leadership practices impacting over 3000 students, an equal number of parents in the community at large. KEF through its sustained efforts and activities will endeavour to move beyond blaming to blooming in the schools and communities we work.



**Prof. N. N. Sharma**

Chairperson, Centre for CSR and Sustainability,  
Birla Institute of Management Technology (BIMTECH), India

*He has experience of more than 30 years in social development sector. He has worked with government institutions and also with UNDP and UNIDO and was associated with livelihood projects funded by the World Bank and Department for International Development (DFID), UK.*

*He is vice-chairman of Social Audit Committee of ACC Limited and an Independent Director of National Aluminum Co Ltd (NALCO), a Navratana PSU of Government of India. He is also one of the Trustees of BIMTECH Foundation.*

*His areas of interest are i) livelihood promotion ii) cluster development iii) corporate social responsibility and iv) ant-poverty programmes ,v) social enterprises and innovation and vi) Microfinance and financial inclusion.*



**Mr. Aejazahmed Fulwadia**  
PhD Scholar, Faculty of Social Work  
The Maharaja Sayajirao University of  
Baroda, Vadodara

**Prof (Dr) Bhavna Mehta**  
Faculty of Social Work  
The Maharaja Sayajirao University of  
Baroda, Vadodara



## Gir Tourism: Sustainable Livelihood Opportunities

Gir National Park & Sanctuary (comprises of 1412.13 km<sup>2</sup> area) situated in the state of Gujarat, India is well known as the only natural habitat for the majestic Asiatic Lions (*Panthera leo persica*). The population of the lions once was on the threshold of its extinction and saved by the timely scientific management inputs by the respective governments. As per last Asiatic Lion Population Estimation conducted in 2015 by Gujarat Forest Department, there are 523 lions in Gir and its adjoining areas. Being a top consumer of the Gir Forest ecosystem, the role of Asiatic Lion is significant. The Government of Gujarat has considered Asiatic Lion as the flagship species of Gir Forests.

The Gir management has played an important role in the conservation of biodiversity of Gir as well as the landscape with multiple management approaches and strategies. The forest management activities such as habitat management, wildlife rescue, treatment and rehabilitation, Nature and Environment Education Programmes, Local Community Participation in Wildlife Conservation, Research Activities, Training, Awareness Programmes and Ecotourism have benefitted in increasing number of Asiatic Lions in the natural habitats. The people living around Gir are relatively more tolerant towards wildlife of Gir. Ecotourism, inter alia, is an important management practice of Gir. It is a major source of livelihood for the local people.

As The International Ecotourism Society (1990), defines "Ecotourism is responsible travel to natural areas that conserves the environment and improves the well-being of local people". In Gir, most of the economic activities of the villages nearby Sasan, Bhojde and Bhalchhel to mention few, are dependent on ecotourism activities. The local people realise the importance of forests and wildlife for their economic prosperity. And most importantly, the ecotourism has resulted in positive relationships between local people and local forest department.

Many hotels, farmhouses, guest houses are developed and visitors enjoy living in the natural environment and sighting Asiatic Lions in their natural habitats. With increasing number of tourists, many entrepreneurs have started unauthorized resorts and farmhouses too. With increasing demands of tourists and to earn extra money, illegal activities such as lion show, entry in restricted forest areas etc. are noticed. Ecotourism, undoubtedly, is an important economic activity which not only provides local people to engage in tourism activities but benefit in the marketing and sale of local farm products, such as Kesar mango, at a large platform. It has potential to create positive environmental and social impacts by which local prosperity can be established and maintain, yet a poorly managed ecotourism can damage an environmental strength on which the people depend. The issues of loss of biodiversity, degradation of wildlife habitats, noise, water and air pollution, production of waste are the serious concerns for ecotourism management that will definitely affect adversely to the long-term ecotourism opportunities for the local people. Currently, the government of Gujarat has declared eco-sensitive zone in periphery of Gir Sanctuary to which local people, mostly, farmers are opposing. This is a critical issue for the management of Gir forests, wildlife management, economic activities and people's perspectives regarding forest conservation.



### **Dr. Amarendra Das**

Assistant Professor, School of Humanities & Social Sciences,  
National Institute of Science Education and Research Bhubaneswar, Odisha

*He has 7 years of teaching, research and administrative experience from Jawaharlal Nehru University, New Delhi, India. Dr Das has taught to the Post Graduate students at Utkal University Bhubaneswar and National Institute of Science Education and Research, Bhubaneswar. During July 2013 –October 2014 Dr Das worked as Deputy Director in the 14th Finance Commission of India. He has carried out several large projects funded by the government and World Bank. He has also a number of publications to his credit.*

## **Active Role of Local Governments for Sustainable Provision of Drinking Water: A Case Study from Odisha, India**

In India the 73rd and 74th constitutional amendments empower the Panchayati Raj Institutions (PRIs) and Urban Local Bodies (ULBs) for providing drinking water to rural and urban households respectively. Both the Union and State Governments provide funds for the provisioning of drinking water. Recently the contribution of Union Government has gone down drastically and that of the state government has increased significantly. In order to examine the efficiency, effectiveness and sustainability of Rural Piped Water Schemes (PWS) in Odisha a study was undertaken during April-October 2017. A total number of 100 PWS were selected from seven districts of Odisha and 2000 households from these 100 PWS habitations were surveyed. Apart from household surveys, in-depth interviews were conducted with all stakeholders starting from pump operator in the village, to elected representatives (namely Sarpanch, Block chairman, MLA, MPs), Government departmental officials (namely Junior Engineer at block level, Executive engineer at district level) and all officials at state level. Focus Group Discussion (FGD) was carried out with the villagers of 15 successful PWS and 5 failure PWS.

The findings of the study on the institutional design for the provisioning of water are as follows: 1) One year ago the Rural Water Supply and Sanitation (RWSS) department was in charge of the provisioning of drinking water and been merged with the Panchayati Raj Department. 2) Merger of RWSS with the PR department has led to better coordination between all stakeholders. 3) Until now the RWSS department has the responsibility of designing and building the structure of PWS in selected habitations. After completing the structure of PWS, it is handed over to the Panchayat for the operation and maintenance. The RWSS officials also form a Village Water and Sanitation Committee (VWSC) for looking after the PWS. 4) A very small proportion of the rural households (only 2.5%) have got piped water connection to the house. 5) The state government has issued guidelines to Panchayats for collecting user fees from the households with pipe water connection. However, very few Panchayats do this. 6) Panchayats are facing scarcity of manpower for the proper look after of PWS and collection of user fees. Along with this Panchayats are reluctant to collect user fees for losing the public support. 7) A large proportion of the households have willingness to pay (ranging from Rs 30 to Rs 100) for getting piped water connection to house and sufficient water for domestic consumption.

For the effective management of PWS following institutional design is necessary: 1) While designing the PWS a survey should be carried out to measure the demand for water in coming 30 years.. 2) The design and execution of the project should be carried out by the Executive Engineer at district level. 3) Panchayats should appoint dedicated manpower for operating the pumps and its maintenance. At village level a VWSC should be formed to monitor the water usage practice of the households and report to the Panchayat.



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## **Faecal Sludge Management: A Challenge for Sustainable Sanitation**

Faecal sludge management in India is at an interesting juncture. We are moving towards an Open Defecation Free (ODF) country, many of the cities and villages have already declared them as ODF. The question is what next? Most of the defecation points are actually onsite sanitation system, be it household toilets, community toilets or public toilets. These toilets are linked to a variety of containment chambers i.e. pit, soakage pit, single chamber septic tank, twin chamber septic tank etc. The containment chambers get filled in due course of time depending on their size and use, and thus they require periodical desludging. This desludging is mostly being done by the untrained, unsupervised, unregulated and unorganized private services providers. They collect the sludge and septage from the containment chamber either manually or through the suction pump, without any protective gears, which later on they release in to open drain, water bodies, open farms etc. in the adjoining areas. This creates a very serious hazard to the environment, contamination of drinking water, soil quality in the agricultural land and health risk caused by water-borne diseases. Various technological models are available for the treatment of faecal material for high density urban settlements in the form of Sewer Treatment Plant / Faecal Sludge Treatment Plant. However, there is still a need of sustainable model to manage this faecal sludge in a scientific and environment-friendly manner. This papers review the issues and challenges of the faecal sludge management in both urban and rural settings.

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## Vehicular Source Apportionment For Noise Level At Traffic Junctions In Thane [M.S.] India

Noise pollution is one of the major environmental challenges faced in daily life which has detrimental effects on human health and environment. Noise pollution earlier was not a major concern, but with an increase in the number of vehicles in urban areas, improper transport management, inappropriate and rapid urbanization and industrialization; the noise levels have exceeded the tolerance limits. It has now become a serious problem. In this study, road traffic and noise assessment was conducted for peak hours at three prime junctions of Thane city (Maharashtra State); namely; Teenhath Naka, Kapurbawdi and Majiwada junctions. The study was aimed to assess roadside noise levels with respect to vehicular congestion, to find out the major contributor for road side noise levels. The results revealed that noise levels of all the locations for day and night, exceeded the permissible limits given by CPCB and it was observed that three wheelers are the major contributor for noise pollution.

For peak hours, the noise levels for study locations during day time ranges between 72 dBA - 81 dBA and for night time ranges between 70 dBA - 80 dBA. The noise levels for peak hours exceeded the permissible limit by 1.5 times. Maximum level of road side noise and vehicle count was measured at Majiwada junction followed by Teenhath Naka and Kapurbawdi junctions. This resulted in a direct relationship between traffic load and noise level. The percentage of three wheelers for Teenhath naka (2 sites) during day was observed to be 40% (Site 1), 50% (Site 2) and for night was 34% (Site 1), 32% (Site 2). For Kapurbawdi and Majiwada percentage of three wheelers during day time was observed to be 34% and 42% and during night time was observed to be 36% and 35%, respectively.





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## Identifying Disruptions in the Making due to Innovations: A study of Uber in India

Technology can pose a way out of environmental and social issues as highlighted by innovation literature (Locatelli, 2011; Seelos & Mair, 2012; Sinha, 2017). However, having a technology designed to do so is not enough (Seelos & Mair, 2016). What is equally important for the technology to deliver on its agenda is its commercialization and ultimate deployment. A technology's commercialization and deployment turn it from an innovation with potential to an innovation with desired impacts. A failure to do so can lead to disruption which gets translated into societal, environmental and economic risks. An apt example of such a failure is Tata Nano. The car was meant for the poor but was actually bought as a second or a third car by the relatively better off. Instead of being a social innovation for safe transportation to lower income groups, the car became a short distance travelling carriage for the higher income group to manoeuvre congested lanes substituting walking. This translated into environmental and social disruptions.

Therefore, on one hand, technology offers solutions to many problems, and on the other, technological change in itself may lead to disruptions. However, technological change is inevitable and therefore, what is needed is the ability to manage technological change better (The Global Risks Report, 2017) so that it can indeed reduce hardships of human life and pave the way for a better future.

In this context, two things become important, namely, the nature of innovation or technological change and how it is deployed. The former highlights the growing importance of innovations which lead to improvements in the triple bottom line. Such innovations are referred to as sustainability oriented innovations. The latter indicates the need to understand the process of commercialization and adoption of the technology to see how its deployment unfolds. Observing this process would help pick instances of disruption before they become unmanageable. The evaluation of the changes can guide the firm or the policy makers towards more discerning actions. Further, observing changes that take place in response to such measures would shed light on the measures' effectiveness.



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## **Digital Technologies for Green Economy Consumption and Sustainable Commodity Practices**

An economy functions as a subset in the ecosystem; which is quite unseparateable, in fact an economy cannot exist without the various components of balanced ecosystem. The ecosystem provides various factors of production as land, natural resources, labour, and capital that fuels and fertilizes economic growth for livelihood and Social development. Sustainable development is the organizing principle for effective and efficient utilization of finite resources available to provide for the needs of present society, with envisioning a desirable future state for human societies in which living conditions and resource use continue to meet human needs without undermining the "integrity, stability, productivity and beauty" of natural biotic and a biotic systems in the context of People, Planet and Profit. Green economics may be defined as any theory of economics by which an economy is considered to be component of the ecosystem in which it resides, thus green economy aims at reducing environmental risks and ecological scarcities, hence directs for sustainable development without degrading the environment. Green economics is closely related with ecological economics, but has a more politically and commercially applied focus viz. Green Sticker and eco-label standards have emerged as consumer facing measurements of friendliness to the environment and sustainable development. Green economy consumption and practices highlights the essential role of business in bringing solutions to common global challenges and sets out the conditions which relate to business and industry for collaborative action in the direction of transition towards green economy alternatives. In this present work, various issues concerning sustainable Economic growth and development has been raised and hopefully arrived at a prudent and logical conclusion which focus on Functional and Information Integration of Green economies using Digital Technologies as guiding principles at various levels of planning and decision making.







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## **Urbanization, Water And Governance- A Sustainable Perspective**

Rising urbanization is emerging as a global risk and rightly pointed out by the World Economic forum in its report, 2017. The world is getting urbanized in a faster rate which is forcing the planners, academia and the programme executers to devise ways and means of developing an integrated approach to safeguard sustainable development of urban areas ensuring the quality of life of the citizenry. The population in India grew from 1028.7 million with 27.8 percent urban population in 2001 to 1210.57 million with 31 per cent of urban population in 2011. The rapid urbanization and population boom puts enormous pressure on available resources and WATER is such an indispensable basic natural resource. It's well known that very minimal percentage of global water is available for human consumption. It has been professed that the major fight among nations and societies in coming days will take place because of water. If we see in urban areas, water is predominantly supplied by civic bodies like municipality; municipal corporations etc, but are they prepared to face the upcoming challenges? What is the way ahead? Sustainable development of urban areas ensuring the quality of life of the citizenry aims at economic sustainability, social sustainability and ecological sustainability. The awareness and participation of urban communities is of paramount importance in achieving the herculean task. The question arises that are the citizens really concerned about this impending crisis? What is the level of awareness? What is the average family water consumption in urban areas? Is the pattern of consumption same for all or it varies across section of society and across geographies? It is not enough to understand the issue at hand only; we must come out with probable solutions to address the issue. The likelihood of continuation of urbanization trend in the coming decades posits a great challenge to develop institutional framework to manage the resource constraints and to develop strategies to reduce the pressure on existing resources in the coming days with the participation of citizenry at the appropriate level.



### **Ms. Soumya Rani Gouda**

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## **Understanding The Infrastructural Health Governance In Community Health Centers (CHC) Of Khurda District, Odisha**

Health system in an integrated set of various interconnected parts such as Infrastructure, medicine, Human Resource, health information, health financing etc. Ensuring sustainability in health sector requires good governance of all its subsets. Achieving Universal Health Coverage is like launching a space shuttle where every single element has a significant contribution and ignorance of any element would turn out unsuccessful. Infrastructure is the requisite unit for the functioning of a system or organization. Better quality and affordability of health service to all people requires an integrative approach to good governance. On a broader term governance could be defined as a set of actions and means adopted by a society to promote collective action and deliver collective solutions in pursuit of common goals. The organization, USAID has advocated that health system governance has been undertaken with an objective to promote and protect the health of the people. That involves the setting of strategic directions and objectives, making laws, rules, regulations and policies for deploying resources and overseeing it for accomplishing strategic directions and objectives. There are different tiers of health service in India such as Sub-center, Primary Health Center, Community Health Center, Sub-district and District hospital. This short study has been conducted to understand the governance of health infrastructure of CHC in Khurda district, Odisha. The objective of the study was to identify the key indicators for the assessment of infrastructural health governance and mapping of the infrastructural facilities available in CHC. The study involved primary data collection through a convenient sample of CHCs. The infrastructure facilities were compared with the IPHS guidelines. The CHCs covered were well connected to the roads. The number of beds in the CHC was supposed to be 30 but out of the 6 CHCs covered only 1 CHC fulfilled the criteria. The reasons were either unavailability of rooms or waiting for approval of the proposal by higher authorities. Ambulance service was provided through state govt. run 108 ambulance. CHCs nearby to the capital city, Bhubaneswar, received fewer referral cases from their Primary Health Centers (PHCs) as a result increasing the patient load in the district hospital. In addition, travel distance of a few PHCs to their CHC was long leading to less referral. There was availability and proper functioning of labour room, Operation Theater, pathology laboratory, drinking water, electricity and alternative source (generator/inverter). X-ray facility was not present in spite of its mention in the guidelines. The First Referral Unit (FRU) is the CHC but it did not act as FRU in few CHCs. There were infrastructural facilities available but not completely as mentioned in the pre-designed guideline for CHC. It might also mean that the manual needed revision with consultation from the CHCs. The governing body would scrutinize the validity of the need and formulate the change required. Clustering of patients in few healthcare facilities would not help in effective and efficient service. Optimal utilization of the health facilities at all tiers would ensure better governance.



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## **Forget Foreign Aid, Focus on Foreign Investment in Women Entrepreneurs: A Major Challenge of Social Constructionist Theory Leading To Sustainable Empowerment**

Education is a boon to mankind, while lack of education to a person is a bane now-a-days. Throughout the world, we can observe that the ratio of women entrepreneurs is growing tremendously. The emergence as well as development of women entrepreneurs is quite visible in India and their over-all contribution to Indian economy is also very significant. Today the role of Women entrepreneur in economic development is inevitable because women are entering not only in selected professions but also in professions like trade, industry and engineering. • The industrial structure and the enterprises are undergoing a radical change. Information Technology has transformed the very technique of doing business. Individually, business ownership provides women with the independence they crave and with economic and social success they need. Nationally, business ownership has great importance for future economic prosperity. Globally, women are enhancing, directing, and changing the face of how business is done today.

### **Expect the unexpected and Whenever possible, be the unexpected.”**

“The Glass ceiling that once limited a woman’s career path has paved a new road towards business ownership, where women can utilize their sharp business acumen while building strong family. In the motivating words of the eras great stalwart Mr. APJ Abdul Kalam “Empowering Women is a prerequisite for creating a good nation, when women are empowered to create a society where stability and sustainability are highly assured. Empowerment of women is essential as their thoughts and their value systems lead to development of good family, good society and ultimately good nation”. Everything which is sustainable is obviously good.



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## **Innovation and sustainable disruptions: A study on consumer adoption intention**

During the recent decades, the need for sustainability has been amply discussed and, consequently, governments, for-profit and non-profit corporations, and advocacy groups have been under pressure to reduce their harm to the environment and to improve social justice throughout the world (Ha-Brookshire et al., 2017). Corporations are increasingly motivated to proactively integrate sustainability issues into strategy rather than to merely comply with regulatory requirements (Bhupendra & Sangle, 2015). But managers should be aware that merely integrating sustainability issues into strategy might not help corporations to achieve corporate sustainability performance goals. Rather, special attention should be given to integrating sustainability into management control systems to facilitate the implementation of strategy (Wijethilake, 2017).

Sustainable development describes a “development which meets the needs of current generations without compromising the ability of future generations to meet their own needs” (WCED 1987). It contains within it two key concepts. First one is the concept of ‘needs’, in particular the essential needs of the world’s poor, to which overriding priority should be given. The second one is the idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs. Now-a-days, managers are challenged to deal with sustainability while at the same time being responsible for the wellbeing of their organisation (Schaltegger & Horisch, 2017). Corporate sustainability management aims at reducing negative social and environmental impacts and contributing to sustainable development. Corporates go for various sustainability activities. They go for various innovations. Recently companies are adopting sustainable disruptive (SD) practices and integrating them to their business model. These are the innovations that may impact consumers. Both service and product companies are adopting sustainable disruption innovations (SDI) and its effect on consumer adoption intention need to be checked.

The current research is focused on SDI activities in service sector. The purpose of this research is to examine the effect of sustainable disruption knowledge, its benefit understanding and consumer innovativeness on consumers adoption intention (AI). The researcher also looked at perceived risk as an important mediating variable. The research contributed to literature by developing an integrated model about consumer evaluation SD.





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## Pollination By Honeybees - A Real Pioneer Of Sustainability

The word “pollination” is often defined as the service of bees for pollinating crop plants. Honeybee is the most important insect who transfers pollen between flowers and plant. Honeybees are generally pollinator as per many reasons. But it is the matter to be worried for each and every individual for extreme way of decrease of honeybees by habitat loss, pesticide for huge agro productivity and parasite attack. Pollination which is the major process for transferring pollen grain from anther to stigma helps in converting fertilized egg cell into seeds. We can just correlate our living standards without honeybees. In economic point of view the value of revenue generation by pollination of honey bees is approximately \$16 billion in US. From this information we can definitely get the importance of honeybee in economic as well as anthropogenic development.

The poster we are going to represent is all about the deterioration of honeybees and our suggested business model for Apiary development in triple bottom line which can be simply correlated with SDG goals i.e. decent work and economic growth (8) and live on land(15).Here planet is honeybees conservation by new Apiary Technology, people concern is crop growth (food for people) and profit is employment generation through Apiary farm engagement. This model represents the deteriorating scenario of bees to development phase of bees where path of sustainability keeps on ameliorating.



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## Robots and Artificial Intelligence- Creating Political Disruption

Artificial Intelligence is more likely defined by the intelligence displayed by machines, induced by coding languages, understood only by a computer. Natural Intelligence is what we humans and other animals display. With increase in industrialisation and automation it has become a need for manufacturing and service sectors to meet the competitive market demand. Computers are already beginning to substitute people in agriculture, manufacturing, medicine and even a driverless car on the road. China, world's second largest economy has already laid out an ambitious plan for a \$150 billion AI Industry to become the "innovation center" for AI by 2030. Cognizant, which is based in the U.S. but has most of its workforce in India, is also making ever greater use of AI, from online bots managing clients' finances to helping create automated systems for smart devices. Scientists are now closer to invent artificial muscles. But actually, AI is about to replace humans. Is it good or bad!

The poster enters into the phase where AI has been praised but it has also been criticised for its negative effect on the society. The fourth Industrial Revolution is about to shake up the physical infrastructure networks, economic status, environmental conditions, social inequalities and definitely the "Political and Governance Systems". It focuses on the political disruptions that will be created in the mere future. On one page there is "Agenda 21" and another page there is rise of unemployment due to adaption of AI. It also tells about the insecurities of the insurance sector in the mere future after the invention of driverless cars. How there will be a dilemma of governance and how it will lead to political disruption, causing global war is explained by "Long Cycle Theory".





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## Green Engineering, Procurement and Marketing in a Sustainable Smart City

Currently India has a population of 1.324 billion with 1,709.39 USD GDP per capita. In next twenty years about 590 million Indians are estimated to be living in the cities facilitated by the present speed of urbanization. This is going to generate about 70% of the nation's employment. In order to have a sustainable growth and development the government of India has launched "100 smart cities missions" under the guidance of Prime Minister Narendra Modi in June 2015.

The Smart city gives a vision of a city which is superior in planning and technology and is highly digitalised in terms of facilities and infrastructure. India has a unique and diverse environment; its cities reflect a similar array in opportunities, weakness' and barriers. As we all know that any smart city is an interdisciplinary field which requires a high level of cooperation among experts from various fields and a contribution of the latest technologies in order to achieve the best results in the major six key areas. These six key areas cover economy, environment, mobility, people, living and governance. Henceforth following a system development methodology is highly recommended for a successful implementation of a system or a project.

What if the government and the corporates work together for the same cause? Corporates can develop their business processes and inculcate sustainable approach for the betterment of the society. The three fields in which the corporates can work intensively to develop a sustainable smart city are green engineering, green procurement and green marketing. Here the idea is to facilitate the development of the city into a smart city by adapting sustainable approach in all the business processes to reduce stress on the environment by minimising waste. If corrective measures are taken from the very beginning then sustainable living is not a far-fetched dream.



### **Dr. Parashram Jakappa Patil**

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*He is working on natural resources accounting. He is one of the young social scientist. His area of research interest are finance, accounting, sustainability, and agriculture economics. He has published number of books and research papers in national and international level.*

## **Forest Accounting and Sustainable Development**

Forest accounting is having direct input to ecological ecosystem sustainability in various way such as (1) reducing loss of biodiversity. (2) Mitigate inflated economic production figures. (3) Enable value chain and supply chain accounting starting with net forest produce. (4) Enable Gross National Happiness -GNH calculation that is dependent on forest living and environmental standards. (5) Enable balanced economic growth keeping future economic concerns. (6) Enable balance in regional economic diversity. (7) Safeguard biodiversity (both plant and animal). (8) Assess tradeoff between agriculture and environment preservation exercises (9) assess nature of food safety networks based on area specific nutrition availability and bring economic measures for balanced nutrition in regions. (10) Cause rational international economic and diplomacy dialogues based on hard data. (11) Measure economic sustainability. However following are the specific objectives of present research work

1. To explore relationship between forest accounting and sustainability.
2. To develop theoretical modeling of sustainability

The present study is explorative study on sustainability through developing forest accounting system. Essential data has been collected to find out present nexus.





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## Aquaponics: An Ecotechnology Approach towards Sustainable Food Production

Ecotechnology is the discipline of sustainable development. Ecotechnological practices can facilitate restoration of the degraded areas for the survival, development and sustaining economy of the society. Ecotechnology is an applied technology that seeks to fulfill human needs while causing minimal ecological disruption, by harnessing and subtly manipulating natural resources to leverage their beneficial effects. Examples are treatment of degraded wetlands, rain gardens, vegetation used for soil erosion control and management of environmentally stressed areas. Aquaponics is a combination of 'Aquaculture' which is growing fish in a re-circulating system and a Greek word 'Ponos' which means growing plants with or without media. Aquaponics is thus an ecotechnology with a hybrid system with a non-living part that is designed by man and a living part (the ecosystem) that self-designs. In the current study gold fish *Carassius auratus* are raised in a tank and water from the fish tank is pumped to tomato (*Solanum lycopersicum*) plants where bacteria convert ammonia and nitrite to nitrate, which is absorbed by the plants. The fish produces continuous organic fertilizer for the plants thus creating a polyculture to the plants. In the current study an attempt was made to grow the fish in diluted domestic wastewater. The water parameters like pH, DO, Nitrates, Hardness and alkalinity as well as microbial load were analyzed for the control water tank and wastewater tank. The fish survival rate and plant growth rate were decreased initially for wastewater, but both survived. This aquaponics system does not produce any waste and hence is a sustainable approach.

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## H&M's Business Model Towards Sustainability in a World of Fast Fashion Introduction

The fast-fashion industry is identified by garments that are worn less than five times and kept for 35 days. According to Forbes, it produces 400% more carbon emissions per item per year in comparison to garments worn 50 times and kept for a full year. The apparel industry accounts for 10% of the total global carbon impact and is the second largest industrial polluter, second only to the oil industry. The social impacts of apparel industry are far more complex than these ecological and economic impacts.

Today's customers are more inclined towards the sustainable brands. Consumers care about what they wear and how it is produced. This demand for transparency along with the climatic changes has compelled brands like H&M to implement sustainability standards in their business. They have started including more sustainable material in the production of its fashion and fabric. Organic cotton and recycled polyester and wool are being included across H&M's product range to produce sustainable fashion. H&M has also taken steps to control waste at the back end of the cotton life cycle. The U.S. EPA estimates that textile waste occupies nearly 5% of all landfill space in the U.S. when nearly 95% of this could be recycled or reused. In 2013, H&M introduced their garment collecting initiative – collecting over 22,000 tons of old garments for reuse and recycling since launch, enough fabric for nearly 100 million t-shirts. It also offers discounts to consumers who turn in their old clothes at H&M stores. After the Rana plaza collapse, H&M was the first and the largest brand to sign on to the 2013 Accord on Fire and Building Safety in Bangladesh. The accord is a legally binding agreement, which encompasses over 1,600 factories. As one of the world's largest fast-fashion retailers, H&M is aiming to reinvent the fast-fashion industry by making sustainable fashion choices available, attractive, and affordable for the masses.

### **Proposed Methodology and Results:**

This paper will be derived from an in-depth study of the business models followed by various brands using industry data, annual reports, trend study, factors driving the change, consumer reaction, social media responses etc. It will present and discuss the business model of H&M and how it has impacted other fast fashion apparel brands. Same model may be followed by the other apparel brands so as to make the business more sustainable as well as profitable to the apparel industry and to the society as a whole.



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G M University, Sambalpur, Odisha



## Restoring Aquatic and Coastal Ecosystem

As we all know earth called as blue planet as  $\frac{2}{3}$  part of earth cover by water only. Nearly  $14 \times 10^8$  cubic km. of water cover the planet only from ocean or 97.5% of ocean water which covers 71% of the earth surface. Wetland are estimated to occupy merely 6.4% of the earth surface, and aquatic ecosystem more over include various other expects open sea, costal zones (estuaries, tidal marshes, mangroves, coral reefs) lakes and reservoir. 30% world primary productivity obtained from ocean only. As we know variability and change are natural processes in every ecosystem.

If we discuss the current condition human and other natural causes playing a crucial role in change to the landscape of hydrological system, this result in pollution and other complexity in aquatic ecosystem and costal area. Polluting discharge to the water body sewage disposal in a huge amount, industrial effluent discharge, pollution in coastal area these are the major issues nowadays as aquatic ecosystem are very different from terrestrial part special majors are under taken for their restoration and good health. Aquatic ecosystem restoration is a very broad term that can take many forms habitat restoration of river stream, rivers lakes, estuaries, wetland, beaches and vernal pool. The problems differ from area to area site to site. Many stapeses are under taken to solve these hydrological issues.

Many restoration policy has been implemented like watershed restoration plan, waste management, eco-tourism plans, removal of fish passage blockage, sewage treatment, 4R (Reuse Reduce Recycle, Recover), restriction of zero net use in fishing. Regular observation of the wetland animal health and water sample test has been fallowed. Adoption of trash control measures, meadow restoration. But we must remember that the plans are not specified to any area and situation. They are having multi-dimensional uses.

## Students of Class XI - Humanities, DPS Kalinga, Odisha



**Ms. Eshita Sharma**

Besides being academically proficient, she enjoys participating in quiz competitions.



**Ms. Niyatee Rout**

She is a scholar-badge holder and is an avid reader



**Ms. Pronita Tripathy**

She is a brilliant student and part of the School Editorial Board.



**Ms. Ankita Moharana**

She is a very creative and innovative artist with excellent acting skills.



**Ms. Sriya Dash**

She is a class topper and a voracious reader. She aspires to join the Civil Services

### Iranian Ship meets its Terrible Fate: Fact or Fantasy?

'The concatenation of conflagrant smoke and dust, howbeit boiling up from where the fire had gone off, was being turbulently agitated at the bottom .A pillar of affixed flashes broke out, hoisting and pervading the incandescent radioactive gasses, and then a great cascade of flame loomed. Black, viscous and pungent, the crude oil fructified a suffocating blanket on the apex of the ocean. The tide was as black as ink. Blackened birds with their coated feathers struggled and lurched. This natural landscape that had been in harmony for time out of mind had been annihilated in a minute.....'

Emerging recognition of two fundamental errors under-pinning past policies for natural resource issues heralds awareness of the need for a worldwide fundamental change in thinking and in practice of environmental management. The first error has been an implicit avowal that ecosystem repartees to human use are linear, can be envisioned and bridled. The second has been an avowal that human and natural systems can be treated independently. However, the SANCHI tanker incident suggests that natural and social systems behave in nonlinear ways, exhibit blatant by thresholds in their dynamics, and that social-ecological systems act as unequivocally coupled, mosaic and evolving interspersed systems. This is as the ship exploded due to technical errors, couldn't be helped due to environmental risks, caused geopolitical tension and led to societal and economic loss .We can use the concept of resilience—the capacity to buffer change, learn and develop—as a framework for understanding how to sustain and enhance adaptive capacity in a complex world of rapid transformations. Two useful tools for resilience-building in social-ecological systems are structured scenarios and active adaptive management. These tools require and facilitate a social context with flexible and open institutions and multi-level governance systems that allow for learning and increase adaptive capacity without foreclosing future development options. There exists a linkage between disasters and sustainable development ,yet ,disciplinary silos prevail and there is minimal communication and cooperation between disaster management , environment and development communities .Catastrophic events like that of SANCHI explosion endanger set-backs in development and as a resultant slow onset effect of oil spill poses threat to development .

The Yokohama Strategy and Plan of Action for a Safer World (1994), as the first major international framework for disaster risk reduction, recognized the interrelation between sustainable development and DRR, "disaster prevention, mitigation, preparedness and relief are four elements which contribute to and gain from the implementation of sustainable development policies. These elements, along with environmental protection and sustainable development, are closely interrelated".

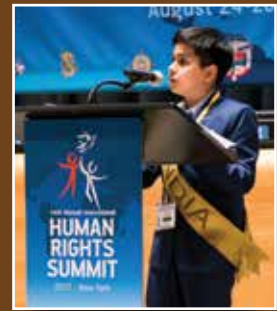
Disaster risk reduction (DRR) is an inherent wedge of social and economic development, and is consequential if development is to be sustainable for the future. We can commence by doing merest by having the least impact we can. However, more than that, we need to be cognizant of what virtuous cycles are and how they are the perpetual in principle as the elucidation loops of the body, how by alluding them to the way we care for our planet and each other we can truly sally forth to build an ameliorate sustainable world. Sustainable development is the pathway to the future we want for all. It offers a framework to generate economic growth, achieve social justice, exercise environmental stewardship and strengthen governance.



## Mr. Ayush Chopra

Student (Std 10th), Ahlcon International School, Delhi

*He represented India in the Youth For Human Rights International Summit on August 2017 at United Nations Head Quarters, New York. He is the Youngest Ambassador of TeachSDGs Community*



## The Precious Balance Of Life On Earth

"What is the good of having a nice house without a decent planet to put it on ?" - Henry David Thoreau

This Video is created as part of the campaign supporting Sustainable Development Goals:-

#SDG13 : Climate Action

#SDG14 : Life Below Water

#SDG15 : Life On Land

We never realised how special the earth was until it is gone. Dodos are no more, Quaggas are no more, Rhinos are no more. We have poisoned our oceans as well. These days kids need to wear masks to even go to schools. The error committed has become a big mistake now and we all have the duty to correct this. And it is possible only by changing the climate of our souls first.

In the video he has tried to show the journey of two Students while creating the model of their DREAM EARTH with the perfect balance of life on it. One is more focused towards the technological changes brought in by human on Earth. And he is designing his dream earth using the latest infrastructure. At the same time, there is another Student who is not able to find the solution to make the model of Sustainable and dream Earth. He is confused whether to put human on his earth as the moment he tries to give him a place, he fears that the human will ruin his dream earth. Finally, his model of Earth only comprised of nature and NO HUMAN.

"Change is what we need,  
Don't change the planet but change your speed.  
Your speed of destructing the natural resources  
And ruining all that is left of our gifts.  
Your little change today will help build a tomorrow,  
Which is full of happiness and lack any sorrow. "

The you tube link of the video is as follows:

[https://youtu.be/T\\_SFnbtfHc4](https://youtu.be/T_SFnbtfHc4)



**Dr. Pradeep Mehta**  
Managing Trustee, CHINAR

*He has a doctorate degree in forestry and over 16 years of postdoctoral experience in natural resource management and sustainable livelihoods (mainly agriculture) in the western Himalayan areas of Uttarakhand, Himachal and Laddakh. He has received a Junior Research Fellowship as part of Indian Council for Forestry Research and Education and Nuffic Fellowship (Netherlands Fellowship Programme). Before establishing CHINAR he worked for international organizations like Earthwatch Institute as Senior Manager. Appropriate Technology Asia as Country Representative & Programme Director India. He also worked with other grassroots organization like Himmotthan Dehradun (Sir Ratan Tata Cell), Central Himalayan Environment Association (CHEA) Nainital and Centre for Development Studies (CDS) Nainital. He is member of IUCN Commission on Ecosystem Management (CEM), Commission on Environment Communication (CEC), and Commission on Protected Areas. He is also member of Global Citizen Science Association and member of Mountain Communication Network. He is Dale Carnegie certified trainer and also certified trainer of GIZ India. His area of expertise are natural resource management, sustainable agriculture, mountain livelihoods, rural development, watershed management, project development and management, research expeditions, citizen science, training and capacity development.*

## Resilience to Climate Change

The film is about the perception of the people about climate change in the Himalaya. This one minute mobile video film expresses the views of the mountain communities about climate change. It shows the impacts of climate change in the Himalayan ecosystem and also shows the opportunities arising from climate change in the Himalaya which makes the Himalayan Ecosystem more resilient to climate change. The film can be used for educational and awareness purpose for all kind of audience. The you tube link of the video is as follows:

<https://www.youtube.com/watch?v=st3qeWSEGNQ>





### **Mr. Saket Mani**

UN Women's Youth Champion for Gender Equality  
Global Youth Advocate for the UN's World We Want 2030  
Coordinator of Smart City 4.0 Co-Innovation Lab



### **Mr. Karan Jerath**

Inventor  
Forbes 30 Under 30  
United Nations Young Leader for the SDGs

*He is a global youth activist, community mobilizer and a strategist focusing on advocacy, partnership, campaign and communications. He currently serves as the UN Women's Youth Champion for Gender Equality to support UN agency's work on gender equality and women's empowerment through the Office of the UN Assistant Secretary-General. He also serves as the Global Youth Advocate for the World We Want 2030 – the largest United Nations and civil society data visualization platform to engage the global population on the SDGs. Saket is the founding member of 1M1B (A Million for A Billion) Foundation, which is a leadership, entrepreneurship and an innovation initiative aligned to the United Nations Sustainable Development Goals. He's also the coordinator for the Smart City 4.0 Co-Innovation Lab, is a unique initiative that will develop skills for Industry 4.0, mentor innovators, accelerate technologies and create fundable start-ups that work towards developing smart cities. Saket also represented the priorities and voices of global youth, on the invitation of the government of the Federal Republic of Germany, in the G20 Summit's Youth Meeting in Berlin, 2017.*

*He is a third year student studying petroleum engineering at The University of Texas at Austin. He is the youngest honoree in the 2016 Forbes 30 Under 30 Energy list and the recipient of the 2015 Intel Foundation Young Scientist Grand Award, which he received at the Intel International Science and Engineering Fair. His most recent role is with the United Nations where he serves as one of the Young Leaders for the Sustainable Development Goals (SDGs). Through this role he will be advocating for the 17 SDGs created by the United Nations.*

## **Youth and SDG**





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