SUSTAINABLE INDIA INTERNATIONAL CONFERENCE (SIIC) - III

Future Innovation and Sustainable Development for Asian Countries

E-Proceeding for January 2023

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"The world is preparing for a big change, will you help?"

~The Mother, founder of Auroville

INTERNATIONAL CONFERENCE

on the theme:

"Future Innovation and Sustainable Development for Asian Countries"

On 14th January 2023

Presented by

SRI AUROBINDO
YOGA & KNOWLEDGE FOUNDATION

sustainable INDIA
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In collaboration with

Dhonburi Rajabhat University, Thailand

With knowledge partners:

International Women in Tech, Ireland

NAAVIKON, Dublin

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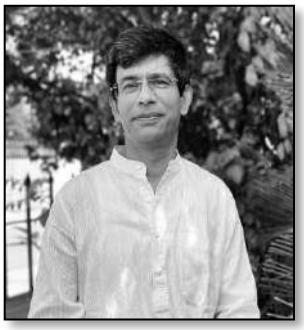
MESSAGES FROM OUR ORGANIZING PARTNERS



"It gives me great pleasure to express my thanks to the organizing team of Sustainable India to conduct an International Conference on "Future Innovation and Sustainable Development for Asian Countries" (SIIC – III) in January 2023. This conference will be a significant one and would provide a wonderful opportunity for fellow educators and research scholars to share and exchange their ideas on recent advancements in Sustainability related issues in Asian countries. I sincerely hope that the dialogue that will get generated at this conference will lead to the implementation of many new ideas in this direction and thus pave the way for further improvements. I am extremely happy that many international experts and delegates will be attending the conference to present their papers and also deliver keynote lectures and invited talks. May this event be an insightful and educational experience for all those who participate in this wonderful occasion. I wish the conference a grand success!"

~ Dr. S. M. Ghosh
Managing Director of The Progress

"Education is always a sign of development and learning. It should be research-oriented, helping society to create something new. Thinking in an innovative and new way is significant to cope with technological changes. This Conference provides a forum for scholarly discussion on advance computing. It is also relevant for exploring and searching various aspects of education through the appropriate application of information technology.

The response of contributors and likeminded people in the educational fraternity showing their keen interest in this conference is highly motivating. The presentation of such research papers is extremely beneficial for research scholars and a stimulating factor for us to organize such conferences frequently in the future. I sincerely offer my earnest gratitude to those who have contributed through their research papers at the conference. I am sure that the conference would achieve its objective by providing a suitable platform for learning and experiencing the latest advancement in the field of industry. The cohesive efforts of a dedicated and committed team become necessary for organizing such conferences. We are fortunate enough for having such a hardworking team with us. I wish for the grand success of the conference."

~ Meenakshi Ramesh Patel
Co-founder/ Director of Sustainable India

"Sri Aurobindo once said, "Evolution of consciousness is the central motive of terrestrial existence."

With the concept of evolution comes a shift in consciousness. Sustainability starts from this shift in our thoughts and practices. Sustainable India, which is an initiative of Sri Aurobindo Yoga & Knowledge Foundation, is a socio-spiritual organisation, with an intent to take action towards creating better livelihoods, opportunities and learning for all. We believe that Action can only be taken when there is Awareness. Working at the grassroots level to create space and awareness is our priority.

Finding and adapting technology and innovation that serves the greater purpose of creating a better experience for all species in existence should be the driving force for each one of us. Sustainability is not just a lifestyle, it's a practice – a practice of gratitude to serve beyond and help everyone to grow with goodness. Every step taken towards the well-being of the planet as a whole is essential. We must keep in mind that when we seek a shift from ego to gratitude, we will be able to establish a clean ecology in our society. A sustainable tomorrow starts from our awareness and the action that we take today."

~ Shubhangi Ghosh
Co-founder/ Director of Sustainable India

"The imagination is really the power of mental formation. When this power is put at the service of the Divine, it is not only formative but also creative." – The Mother

"The hibiscus flower held special significance for the Mother and in light of the theme of SIIC-III, it felt only fitting that this bloom adorns the front page. It is a privilege to be a part of the team behind these Conferences, and I hope to capture the generous efforts of all involved. My message for the readers is: Whether it is on an individual or collective level, remember that your efforts matter, as do your words, hopes and fears. It is in recognizing our own humanity – with its potential as well as its shortcomings – that we can move forward and contribute towards a happier and healthier world. We need new ideas, fresh perspectives and unconventional thinking to help us fight the battles of today. This, of course, does not imply an abandonment of our roots and heritage. Rather, we need to reaffirm their relevance by adapting them to today's context and embracing them in an authentic manner. True Innovation celebrates the possibilities of the present and future while learning from the past. Let us dream of more inclusive, empathetic and holistic solutions and turn them into reality."

~ Toshita Sahni
Head of Creative Team, The Progress;
Designer of E-Proceeding

MESSAGE FROM OUR KNOWLEDGE PARTNER

"As Asia continues to be a hub of economic activity and growth, future innovation and sustainable development will play a crucial role in shaping the region's future. While innovation can bring about new technologies and opportunities, sustainable development is necessary to ensure that these advancements are done in a responsible and equitable manner.

In terms of future innovation, Asia has the potential to lead the world in areas such as digital transformation, biotechnology, and renewable energy. For example, countries like South Korea and Japan have already made significant investments in 5G networks and the Internet of Things, positioning themselves as leaders in the digital economy. In biotechnology, Asia is home to several cutting-edge research institutions and companies working on innovations such as gene editing and personalized medicine.

Sustainable development, on the other hand, is increasingly becoming a priority for Asian countries as they strive to balance economic growth with environmental protection. For instance, many Asian countries have set ambitious goals for reducing greenhouse gas emissions and transitioning to renewable energy sources. Additionally, initiatives such as eco-friendly cities, circular economy, and sustainable agriculture are gaining traction across the region.

However, a key challenge in promoting sustainable development in Asia will be addressing the needs of its rapidly growing population, especially in terms of access to basic necessities such as food, water, and energy. This can be achieved through innovative solutions such as smart cities, efficient water management systems, and renewable energy sources.

In conclusion, the future of Asian countries depends on the successful integration of innovation and sustainable development. By embracing new technologies and sustainable practices, the region can continue to drive economic growth while preserving its resources for future generations."

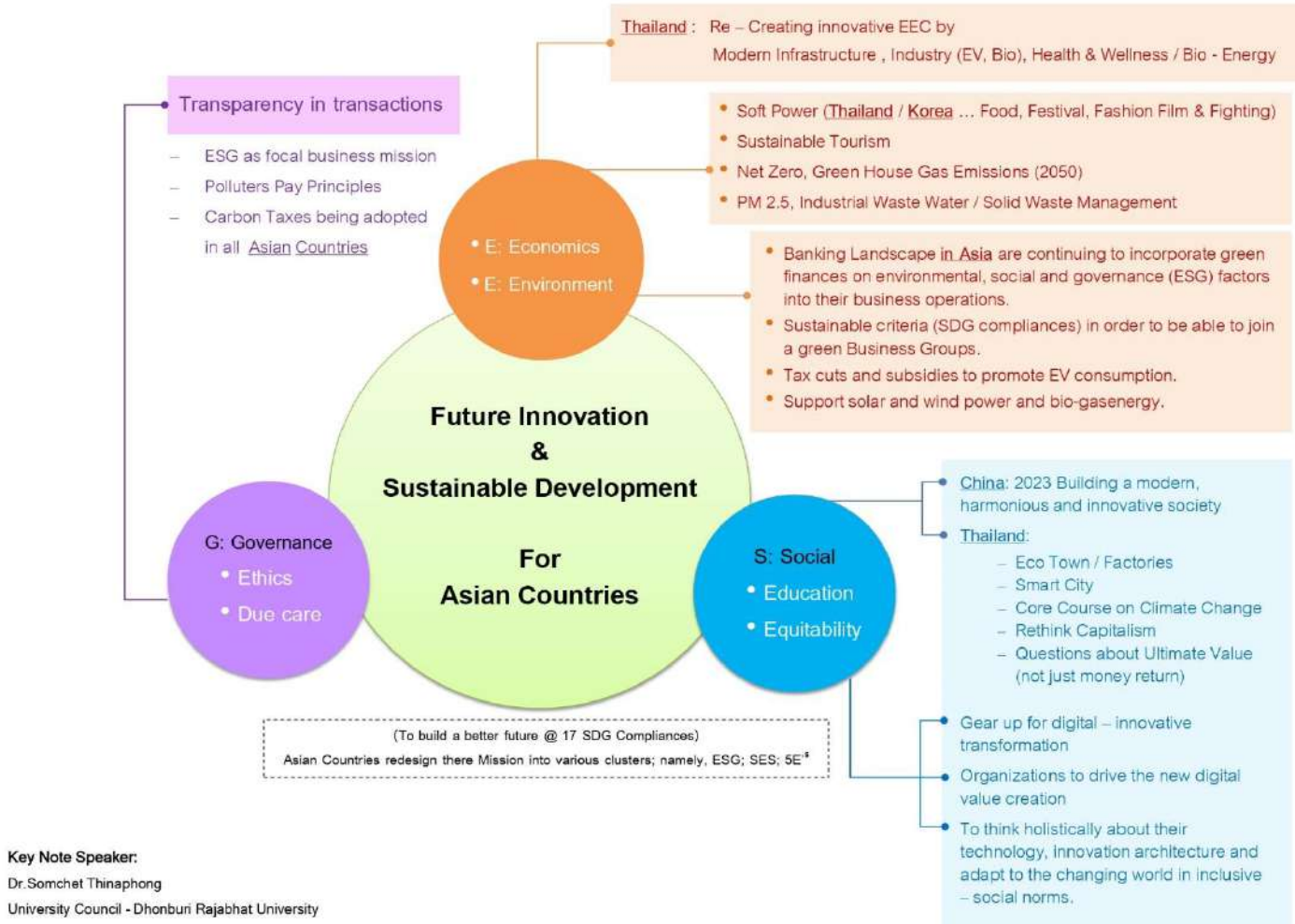
~ Jeevantika Lingalwar

Founder, International Women in Tech, and Co-Founder / President, Naavikon

INSIGHTS FROM OUR KEYNOTE SPEAKER

Assoc. Prof. Dr. Somchet Thinaphong
Director National Innovation Agency, Ministry of Science and Technology, Thailand

This conceptualization of the theme of the conference, 'Future Innovation and Sustainable Development for Asian Countries' is by our esteemed keynote speaker. He has analysed the topic from a multi-disciplinary perspective, taking into consideration economic, environmental, social, ethical and political factors. Here is a visual summary of his enlightening lecture:



MESSAGE FROM OUR SPECIAL SPEAKER

"If you focus on results, you will never change. If you focus on change, you will get results."

"I feel immense pleasure and happiness in being a special speaker at the Sustainable India International conference on 'Future Innovation and Sustainable Development for Asian Countries.' My hearty Congratulations to the team of Sustainable India, Sri Aurobindo Yoga and Knowledge Foundation for having organized this need-of-the-hour Conference.

Education for Sustainable Development empowers learners with knowledge, skills, values and attitudes to take informed decisions and make responsible actions for environmental integrity, economic viability and just society. Education for Sustainable Development is a lifelong learning process and an integral part of quality education. It enhances the cognitive, social and emotional and behavioural dimensions of learning. It is holistic and transformational, and encompasses learning content and outcomes, pedagogy and the learning environment itself.

It is recognized as a key enabler of all Sustainable Development Goals and achieves its purpose by transforming society and empowers people of all genders, ages, and present and future generations, while respecting cultural diversity. As an academician, my focus is to inculcate small changes that will lead to lifelong positive outcomes for a sustainable future.

"In a changing world, Education is the best preparation for being able to adapt."

Let us work towards a Reliable, Valid and Innovative Education system to help in sustainable development."

~ Prof. Dr. B. Sendilkumar

Dean and Director, School of Allied Health Sciences, Vinayaka Missions Research Foundation-DU, Salem, Tamil Nadu

MESSAGE FROM OUR SESSION CHAIR

"The concept of 'Sustainable Development' was formulated in 1987 by the World Commission on Environment and Development, prevalently recognized as the Brundtland Commission. It was established by the United Nations General Assembly in 1983. In the eighties of the 20th century, world leaders turned extremely conscious that the environment was fast deteriorating due to the over-exploitation of nature by anthropocentric human beings. This deterioration compelled us to consider the issue of Sustainable Development in a wider and microscopic context.

> *"Sustainable Development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs."*

As Asia is the most populous continent, and it plays a dominant role in the development of the global economy, Asia is questionably the most central region for accepting global change. It is a time to evaluate and guide humanity's growth toward more sustainable future innovations, moreover, it is essential to pay attention to the indicators and their composite indices. we all need to improve our understanding of development metrics for achieving global change. In the field of education making progress toward sustainability remains as open a platform as ever. In this Sustainable India International Conference in association with Dhonburi Rajabhat University, Thailand, an effort has been made to understand the dimensions such as the major divisions of sustainability like economic growth, social equity, and environmental integrity. These dimensions need to be expressed to achieve

1. Human well-being synergies;
2. Environmental efficiency;
3. Ecological integrity to improve economic performance;
4. Peace, prosperity, and natural resources protection;
5. Economic and political liberty; and
6. Generosity for the well-being of Indians.

As the present decade has been marked by a retreat from social concerns, scholars must bring to attention the urgent and undeniable problems of survival like threats to the Earth's ozone layer and the deserts overshadowing agricultural land etc. India makes up 2.4 percent of the world's land, while supporting 16 percent of the world's population. The compounding result is a strictly unsustainable use of natural resources for several generations. At present, India is experiencing speedy and pervasive environmental degradation at alarming rates. Remarkable pressure is placed upon the country's land and natural resources to support the enormous spread of overpopulation. In this international

conference, we focus on strategies for sustainable development which are obligatory for the survival of our present generation as well as future generations.

Sustainable development will not be straightforward and therefore, it is an inevitable responsibility that is achievable with better discussion, analysis, debate, planning, stronger policies, and effectual implementation. To avoid destabilization of the planet, the addition of the sustainable development agenda in public and private policy spheres is not only inescapable, but predictable and achievable. So it is planned in this conference to invite a churning on this issue in the context of Sustainable India and Asian also.

Besides, in this international conference, the layers of Sustainable Development would be unfolded so that we can protect the resources and make the environment sustainable for future generations. It will not be brought about by policies only — it must be taken up by society at large as a principle guiding the many choices each citizen makes in day-to- day survival. Therefore, it would be discussed how environmental degradation tends to enforce the largest costs on coming generations. The threats of future generations are destitute with regards to the present generations because they can inherit a bankrupt quality of life, share a condition of structural Achilles' heel in having no voice and demonstration among the present generation and so their interests are often neglected in present decisions and planning while it is very much needful for our generation. In a sense, this international conference is a platform to discuss these issues pertinently."

~ Atmaram Gangane
Dnyanopasak Shikshan Mandal's College of Arts, Commerce and Science,
Parbhani, Maharashtra, India

INSIGHTS FROM OUR ADVISORS

WHY RESEARCH ON SUSTAINABILITY?

Ramesh Bijlani
(Sri Aurobindo Ashram – Delhi Branch, New Delhi)

Sustainable living is a relatively new but urgent concern, on which depends the survival of life on our planet. I do not know much about the subject of the conference, but I do know something about research. One of my favourite teachers, Professor N.K. Bhide defined research as original and critical intellectual activity. All research starts, or should ideally start, with healthy curiosity, which is formulated into a question, or a set of questions. It would be hypocritical to say that the investigator knows nothing about the likely answers, and is totally unemotional about the answers that the research gives. The bias of the investigator is reflected in a hypothesis, and the dispassionate nature of honest research is wrapped up in the attitude that the investigator would be equally happy whether the hypothesis is confirmed or refuted by the proposed research. When the study has been carried out, it generates data. If the investigator is truly open to any outcome, the statistical tools chosen and the interpretation of the verdict of the tests applied would test the sincerity of the investigator. One can see here a need for the application of the teaching of the Gita that one is entitled only to the action, not to the outcome. One may expect a certain outcome, but should not be attached to the expected outcome. With this understanding, the spiritual seeker can accept any outcome with equal delight.

One of the most widely known quotes of Sri Aurobindo is “All life is yoga,” which means that everything in life is an opportunity for the practice of yoga. How is research an opportunity for yoga? All the way. Does the origin of research reside in genuine and healthy curiosity, or a worldly gain? Does the research seek to answer questions, the answers to which would matter? Are the collection and analysis of data unbiased and meticulous? Are the interpretation and presentation of the results totally unmotivated by personal prejudice or profit? Finally, is the outcome of research made freely available to those who can use it; in this case, for creating a life that helps sustainability in the modern world? Going within to make sure that the answer to these questions is ‘yes’ would be practicing yoga.

Research is a word that is both prestigious and trendy, and therefore likely to be used loosely. While one may capitalise on the current appeal of the word, it is necessary to stay sincere about the intention, process and outcome of research. Knowing those who are at the helm of affairs in Sustainable India, I am confident that the forthcoming conference will trigger much research that answers questions which are critical to the future of our planet.

OPTIMIZING PLANT DEVELOPMENT AND PHYSIOLOGY VIA INNOVATIVE GENOMICS APPROACHES FOR SUSTAINABLE FOOD SECURITY

Aashish Ranjan
(Scientist, National Institute of Plant Genome Research, New Delhi)

The exponential population growth along with the limiting agricultural land and resources have raised serious concerns regarding the food security. There needs to be a substantial increase in crop yield and productivity to feed the growing world population. Moreover, nutritional content of the staple food crops also needs an enhancement to meet the Sustainable Development Goals (SDGs) of world health organization. Developing crop varieties in order to achieve greater yields along with increased nutritional value has been a major focus of plant biologists and breeders with a view to ensuring food availability for an increasing world population under changing environmental conditions.

The optimization of plant developmental traits, and thus overall physiological performance has great potential for sustainable increase in crop yield, as plant performance is strongly associated with, and dependent on, plant development and growth. The importance of plant developmental features in increasing crop yield potential became evident during the 'green revolution', when an unprecedented increase in yield was achieved by breeding for semi-dwarf varieties of rice and wheat. A number of plant features and traits, such as plant architecture, leaf morphological and anatomical traits, vascular architecture and flowering time, are important determinants of the overall performance of crop plants. These features can, thus, be considered part of a developmental module that dictates crop performance and yield. Thus, genetic manipulations that alter these developmental traits in a desirable way may mark a significant step forward in increasing crop yield. Engineering or breeding for developmental traits with the aim of improving photosynthetic efficiency, and thus yield, requires a thorough understanding of the genetic basis of these traits.

Innovative genomics approaches could be instrumental in deciphering the genetic basis of desirable developmental traits towards achieving sustainable increases in crop yield and productivity as well as nutritional enhancement. Harnessing the natural variation in key crop developmental traits via Genome-Wide Association Studies (GWAS) would provide the genetic loci and markers to be utilized in crop improvement programs. Similarly, dissecting the genetic mechanisms regulating a desirable trait via transcriptomics and proteomics approaches would provide the candidates for gene editing towards optimization of plant features for higher yield.

INNOVATIVE & SUSTAINABLE RESEARCH IN AGRICULTURE

Dr. Hemant Sood
(Associate Professor,Departemnt of Bt &BI, JUIT, Waknaghat, Solan, HP, India)

The definition of "Sustainable Development" is described as development that satisfies current generational demands while not overusing or abusing natural resources in order to protect them for the coming generation. Sustainable development has three goals: first, "economic," which will help to achieve balanced growth; second, "environment," which will help to protect the ecosystem; and third, "society," which will ensure that all people have equal access to resources.

The fundamental tenet of sustainable development is the incorporation of environmental, social, and economic considerations into every decision-making process. The scenario of sustainable development envisions a future in which fundamental institutional changes take place and policy adopts an integrated approach to economic, social, and environmental goals with development as the overarching goal that “meets the needs of the present without compromising the ability of future. By gradually altering the methods we create and use technologies, sustainable development constantly motivates us to protect and improve our natural resources. Solar energy and crop rotation draws the main focus for sustainable development. But innovations in agriculture towards sustainable development is the most desirous target to be achieved globally by all nations.

In Agriculture innovation like Satellite Imaging using GPS takes advantages of AI and make crop control adaptive using weather prediction, temperature, and rain prediction. Hydroponics with Specialized Robots can be used for fine control in dry crops. Drones are used in precision agriculture where the optimized concentration of various fertilizers used for maximizing crop yield. Also, the optimized combination of water content, temperature, sunlight- and crop density can be found to maximise productivity. Drones are useful to spray fertilizers, water, pest control solutions in such remote areas. Also, the fruit collection, crop cutting etc can also be managed easily by advance AI and robotics with the help of drones and robots. True sustainable development acknowledges that human existence and wellbeing are inextricably linked to the health of the planet's natural systems.

RESEARCH PAPER ABSTRACTS

1. PASSIVE COOLING IN HOT AND DRY CLIMATE USING WIND TOWERS, CASE STUDY OF IGP OFFICE BUILDING, GULBARGA

Ar. Rubina Mehraj[1] and Dr. B. Saritha[2]
[1]PhD Scholar, Department of Architecture, Bharath Institute of Higher Education and Research, Chennai
(Email: ar.rubinamehraj@gmail.com)
[2]Associate Professor, Department of civil engineering, Bharath Institute of Higher Education and Research, Chennai

The primary objective of research into cooling techniques in hot climates is to identify and adopt energy-efficient methods to reduce thermal discomfort in the interiors of buildings. Traditional cooling techniques can be used to remove the thermal discomfort induces in the internal spaces of a building. Passive cooling methods, such as installing a wind tower, present a more economical and efficient way to achieve cooling in these climates. Wind towers are specially designed to provide natural ventilation using the rush of cool air that is created by the temperature differentials between two levels. The wind towers draw in the hot air from below and expel it through the top, resulting in cooler indoor temperatures.

The purpose of this study is to explore the use of wind towers incorporated in buildings for cooling the indoor areas, by critically studying the Inspector General of Police (IGP) Complex at Gulbarga, Karnataka, India.

By understanding the fundamentals of energy efficiency, architects can better utilize wind towers to reduce the need for mechanical cooling. These towers act as natural air conditioners using the wind to redirect the airflow towards the open entry points of a building before cooling it down and boosting interiors' cooling efficiency. Furthermore, these towers also help create a comfortable environment in the building while preserving energy resources by reducing the use of electricity and other energy sources. As a result, this study will provide valuable insight into the role of wind towers in improving building energy efficiency. A building may be cooled more affordably by using passive cooling. It makes advantage of wind movement to expel heated air from buildings and bring in cold breezes in its place.

Keywords: Passive Cooling, Passive Technique, Wind Towers, Sustainable principles.

2. DELIVERY OF EDUCATIONAL SERVICES: A CASE OF INDIA

Sakshi Gupta[1] and Dr. Shilpi Khandelwal[2]
[1]Assistant Professor, Maharaja Agrasen Institute of Management Studies, India.
(Email: sakshi080193@gmail.com)
[2]Professor, Jagannath University, Jaipur, India.
(Email: shilpi.khandelwal@jagannathuniverg)

The encounter with the widespread of the COVID-19 pandemic has put the Government globally in a situation to take drastic measures. Imposing of strict restrictions in various parts of the society has come as an exogenous shock to each sector of the country and the education sector isn't any exception. The speed with which the pandemic has spread across the world, has resulted in the closure of educational institutions, followed by an overnight transition to online teaching. This change in the way of teaching has been so sudden that it barely gave any time to reflect on the potential risks or opportunities which it brings with it. Therefore, in this review the proposed study will aim to provide a comprehensive view on how the educators around the globe should shrink the gap between them and their students, by critically examining the challenges and opportunities for online mode of educational services. Also, a comparative analysis of the available digital platforms for online delivery of educational services will provide a concrete view of all the pros and cons available with each platform to help the institutions in selecting the best platform for the effective delivery of productive education. The overall study is exploratory and descriptive in nature, wherein existing literature will be reviewed to analyse the opportunities and challenges being faced by various educational institutions in adopting the methods of digital delivery of educational services in the current condition of Pandemic also being stated as 'the new normal'. In addition to this, some relevant data of variables of educational services like teachers, students along with digital infrastructure (availability of internet, pricing, speed etc.) will be analysed in case of India, to create a concrete picture of this likely new normal.

Keywords: Online Education, India, SLOT, COVID-19, digital infrastructure

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3. INNOVATIVE EDUCATION AND SUSTAINABLE DEVELOPMENT

Chandrakesh Singhal
HOD, CMDE, District Institute of Education and Training (DIET), Karauli, Rajasthan, India
(Email: chandrakeshsinghal@gmail.com)

Education is essential to sustainable development. The Education of today is crucial to enhancing the ability of the leaders and citizens of tomorrow to create solutions and

find new paths to a better, more sustainable future. Unfortunately, our current collective pool of human knowledge, skills, and experience does not contain the solutions to all the contemporary global environmental, societal, and economic Problems. Although humanity has faced crises in the past and successfully navigated them, the scale of current problems is greater and the size of the world population larger than ever before. While we can draw upon experiences of the past to solve the problems of today and tomorrow, the reality is that citizens of the world will have the task of learning their way towards sustainability. Education is therefore central to Learning and to a more sustainable future. The responsibility for a more sustainable future is borne by governments and civil society as well as individuals. All Must contribute in their own way. The 40 chapters of Agenda 2011, describe ways forward in many areas, from agriculture to waste disposal. Education is a cross-cutting theme and is mentioned in each of the 40 chapters. This demonstrates how the education community has a special role to perform. It is through education that the next generation of citizens, voters, workers, professionals, and leaders will be prepared for life-long learning about sustainability. The United Nations uses sustainability as an over-arching paradigm to address numerous interrelated challenges (e.g. poverty reduction, environmental protection, social justice, and education for all). As part of this approach, the United Nations declared 2005 – 2014 as the Decade of Education for Sustainable Development (DESD). Education for Sustainable Development (ESD), also called Education for Sustainability (EfS) in some parts of the world, is a key concept for 1 Agenda 21 is the official document of the United Nations Conference on Environment and Development, also called the Earth Summit, Which was held in Rio de Janeiro in 1992. Agenda 211 is a comprehensive Blueprint for action to be taken globally, nationally and locally by Organizations of the UN, governments, and major groups. Education in the new millennium. ESD is a broad concept bringing a distinctive orientation to many important aspects of education on the whole, including access, relevance, equity and inclusivity. Thus, ESD is far more than teaching knowledge and Principles related to sustainability. ESD, in its broadest Sense, is education for social transformation with the goal of creating more sustainable societies. ESD touches every Aspect of education including planning, policy development, programme implementation, finance, curricula, teaching, Learning, assessment, administration. ESD aims to provide a coherent interaction between education, public awareness, and training with a view to creating a more sustainable.

4. QUALITATIVE AND QUANTITATIVE ANALYSIS OF BAUHINIA VARIEGATA USING METHANOLIC EXTRACT

Nikunj Sharma, Chirag Abrol, Rolika Gupta and Hemant Sood*
Department of Biotechnology and Bioinformatics, Jaypee University of Information and Technology, Waknaghat, Solan (H.P.), India
(*Email for Corresponding author: hemantsood@juit.ac.in)

Bauhinia variegata (Fabaceae) is a deciduous leguminous tree with high medicinal and ornamental value. It is widely spread in the areas of China through Southeast Asia to the Indian Subcontinent. It is consumed by both animals and local people in the areas of its origin and has numerous pharmacological characteristics. Although this plant has enormous medicinal importance and its extract is used to cure various ailments like Diabetes, Tumor, Cancer, Ulcer etc. Considering the pharmacological importance of the herb, we have used leaves of the field grown Bauhinia variegata to estimate the qualitative and quantitative analysis of primary and secondary metabolites. The field grown methanolic extract showed presence of carbohydrates, proteins, alkaloids, sterols, tannins, saponins, flavonoids. The total phenolic content of the extract is 16.80% GAE/g dry weight and the total flavonoid content is 1.88% QE/g dry weight. Such results confirm the pharmaceutical importance of the plant and further those studies can be explored to larger scale as well.

Keywords: Cancer, field grown, secondary metabolites, phenolics.

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5. DECODING CANVA SEO CASE STUDY – THE SEO STRATEGY THAT LED CANVA TO A $40 BILLION VALUATION

Dr. Neha Arora Sethi[1], Dr. Shikha Patheja[2] and Antra Arora[3]
[1]Associate Professor, Trinity Institute of Professional Studies
[2]Associate Professor, Trinity Institute of Professional Studies
[3]Senior SEO Executive, Adda247

SEO referred as Search Engine Optimisation is a common tool used by digital marketers to make their websites more visible to people who are enhancing their online shopping /knowledge pattern. To understand it more empirically the best way to describe SEO is a cherry on a cake. It will help the organisation website to reach on the top through maximum clicks or we must say maximum visitors visiting the website. SEO case studies are a great way to learn more about how to do search engine optimization and what best strategies can be followed to attain the similar results for the same niche websites. In this SEO Case study of CANVA taken the base month as July 2022, we will have a look over the SEO Strategies and Product Strategy behind its success.

Keywords: SEO, Valuation, Canva, Usage, Canva SEO, Canva SEO Strategy, SEO Case Study, CANVA SEO Case Study

6. ALTERNATIVE AND INNOVATIVE EDUCATION FOR SUSTAINABLE DEVELOPMENT IN THE LIGHT OF MADHYASTH-DARSHAN SAH-ASTITWAWAD (PROPOUNDED BY VENERABLE A. NAGRAJ JI)

Dr. Awadhesh Patel
Samadhan College, Samriddhi Vihar, Bemetara (C.G.)
(Email: awadheshsamadhan@gmail.com)

The world aspires that the goal of education should be to provide knowledge and skill through personal development of physical, social, intellectual, and emotional abilities. The current situation in the world is - confused and perplexed human beings, insecurity in relations, terrorism in society and nations as well as imbalance in nature whereas we wish for stability in human beings, security in relations, trust in society and harmony in nature as sustainable and continuous development. For continuous development the **United nation and 193 countries** of the world have expressed their expectations and wishes which can be fulfilled with the right education. At present, this belief is prevalent about education and development:

i. **Every person should be educated**: In this prevalent belief and goal about education and development, it is not clear what should be the sequence of reading and writing, what should be the behaviour of an educated person.

ii. **The family should be more and more prosperous**: While setting this goal, it is not clear how much resources are needed by the family, how to earn it so that the prosperity of nature also remains.

iii. **There should be more and more tools to deal with insecurity and fear in the society**: It is assumed that mistrust, insecurity and fear will remain in the society. Human beings will always remain antagonists among themselves, due to this thinking, the production of weapons and enmity between countries is increasing.

iv. **There should be victory over nature**: Without thinking that nature is complementary to us and we are complementary to nature, the direction of technology has become to conquer nature. In the words of Venerable A Nagraj ji "Earth has got fever in the last 200 years due to indiscriminate use of science and technology. Water, air and land have become polluted, forests have become less and less. Global warming is increasing."

According to madhyasth darshan (philosophy of co-existentialism) the concept of education and development in true sense is seen in this way – there can be resolution in every person, there can be prosperity in every family, there can be fearlessness in the society, and there can be coexistence in all the four orders in nature - material order (soil, stones,metals and gems), bio order (plants and trees), animal order (terrestrial, aerial and aquatic animals) and knowledge order (human beings). At present all the orders except knowledge order (human beings) are complementary to each other and have a definite conduct. Due to lack of knowledge and indefinite conduct human beings are not able to maintain complementariness with all the other orders. The problems of global warming, seasonal imbalance, pollution, crime, war, insecurity, frustration and depression will come to an end if human beings start living with **humane conduct.**

Madhyasth darshan co-existentialism and the education based on it can enable people and students to understand the needs of the individual, family, society and nature and their interconnectedness. It is meant to instil the capability to fulfil all this. The main task of education is to create the right mindset. In this research paper, we will study this topic in detail.

Keywords: Madhyasth darshan co-existentialism, sustainable development, alternative and innovative education, resolution, prosperity, fearlessness.

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7. A STUDY OF CHALLENGES OF SUSTAINABLE DEVELOPMENT IN INDIA

Dr. Chandresh Kumar Chhatlani
Assistant Professor, Janardan Rai Nagar Rajasthan Vidyapeeth, Udaipur, India
(Email: chandresh.chhatlani@gmail.com)

This article assesses recent efforts by the Indian government towards sustainable development goals. It focuses on the new ideas, policies and initiatives to disseminate improved thoughts. The success of government initiatives in urban and rural areas has historically been limited, and institutional reforms in the 2000s promoted market-led and 'user-centred' approaches. It can be said 'pro-poor' route to full development. The article argues that such interventions can meet or cannot address the challenges or have reopened tensions and conflicts in sustainable development goals of United Nation. This article also raises one basic issue: Is there any room for more growth in India? The answer is yes, but a probability of no or may be is also accepted. Indians are able to make lots of progress in many areas; even that sustainability may become increasingly difficult.

Keywords: Sustainable Development, India, Challenges, United Nation, Goals

8. GREEN TECHNOLOGY: A PATH FOR SUSTAINABLE DEVELOPMENT OF THE NATION IN THE 21ST CENTURY

Dr. Jyoti Janswamy[1] and Dr. Samir Kumar Panigrahi[2]
[1]Professor, MATs University, Raipur
[2]Assistant Professor Commerce & Management, MATs University, Raipur

No doubt India is going to become a well-developed country within the Asian region in next decades. A nation becomes developed when base pillars of a nation become strong. In present scenario technology is treated as a base pillar for every nation's sustainable development. Environment safety is the crucial challenge not only in front of India but also in front of world. India focused on implementing a new technology that fit for present environment condition is called green technology. Green technology is a dynamic developed system that consists of Innovative methods to produce environment friendly product. It is a dynamic environment friendly technology developed in such a way that it protects environment and conserve the natural recourses. The prime motive of Green technology is to produce products, systems and framework with the aims of protect not only to natural environment but also act as tool for reducing negative effects from human civilization. Here the researchers focused on the way to explore the role of green technology for sustainable development of India.

9. ENVIRONMENT AND NEW TOURISM: A NEW PERSPECTIVE

Khushboo Dutta
Babasaheb Bhimrao Ambedkar Central University
(Email: khushboo.dutta07@gmail.com)

Tourism is not exclusively an economic phenomenon; it also involves social, cultural, political, and environmental aspects. The socio-cultural effects of tourism are difficult to measure, and to a large extent are indirect, or even unknown. Tourism impacts food, health, behavioural patterns, customs, traditions, etiquette, etc. It has a significant impact on the environment and natural resources. It often brings environmental degradation, but if managed well, it contributes to the conservation of these resources. Due to conflicts between mass tourism and the environment; managers, researchers, academicians, planners, tour operators and international bodies, such as the United Nations Environmental Program (UNEP) and the World Tourism Organization (WTO), are all working toward the development of new forms of tourism that will diminish impacts on the environment as well as maintain the national and local benefits of the tourism.

Modern information and communication technology development in symbiosis with the transformation of tourism demand gave rise to new tourism. This paradigm shift is not easy to define but is indicative of a new type of tourist who wants a new or different product. The new tourists are more experienced, more educated, more "green", more flexible, more independent, more quality-conscious and "harder to please" than ever before. Furthermore, they are well-read and know what they want and where they want to go. The different approach of the new tourists creates a demand for new products. The small, medium and micro-entrepreneurs within the tourism industry are dependent on major tourism developments. It is an essential role of these small entrepreneurs to be increased to deal with the changing demands of the new tourists. This paper deals with sociological perspective of New tourism and its impact on environment.

Keywords: New Tourism, Environment, Sustainability

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10. SENTIMENT ANALYSIS OF STUDENTS' FEEDBACK USING BiLSTM

Latika Tamrakar[1], Saurabh Rungta[2], S. M. Ghosh[3] and Varsha Thakur[4]
[1]Department of Information Technology, Govt. V.Y.T. PG. Autonomous College, Durg, (C.G.), India
(Email: latika.tamrakar@gmail.com)
[2]Dept. of CSE, Rungta College of Engineering and Technology, Bhilai, (C.G.), India
(Email: saurabh@rungta.ac.in)
[3]Dept. of CSE, Dr. C. V. Raman University, Bilaspur, (C.G.), India
(Email: samghosh06@rediffmail.com)
[4]Dept of Computer Science, Govt. NPG Science College, Raipur, (C.G.), India
(Email: varshathakur1308@gmail.com)

Web-based learning is becoming more popular, which has made it more accessible and helps to understand the sentiments of others. Sentiment analysis is the use of algorithms to deal with the feelings or opinions in text. Nowadays, one of the most prominent approaches for monitoring, visualizing, and forecasting interactions is deep learning. Deep learning is a powerful machine learning technique that produces cutting-edge prediction results by learning multiple layers of representations or features of the dataset. In this paper, we propose a sentimental classification of students' feedback using deep learning. Deep learning techniques are used to classify the sentiments of an expression into positive or negative emotions. The positive emotions are further classified into enthusiasm, fun, happiness, love, neutral, relief, and surprise, while the negative emotions are classified into anger, boredom, emptiness, hate, sadness, and worry. The BiLSTM (Bidirectional Long Short-Term Memory) method of deep learning

is analysed on datasets to achieve accuracy. The experiment shows that prediction on the BiLSTM model is with 85% accuracy.

Keywords: Deep learning, Sentiment Analysis, BiLSTM

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11. HOW DOES ENTREPRENEURIAL EDUCATION AFFECT THE INNOVATION OF NEW ENTREPRENEURS? APPLYING MULTIPLE MEDIATION MODEL AT MULTIPLE LEVELS

Dr. Namita Rajput[1] and Monika Gupta[2]
[1]Professor, Sri Aurobindo College, Delhi University, India
[2](Corresponding Author), Research Scholar, Jagannath University, Jaipur
(Email: mgmonika1903@gmail.com)

Purpose

The objective of this study is to investigate the various mediating impacts of political expertise and awareness of business opportunities on perceptions of entrepreneurial education and creativity. This study also intends to investigate the mediating effects of political expertise and the awareness of entrepreneurial opportunity on the perceptions of entrepreneurship education and innovation.

Methodology

The analysis of data gathered from 153 new entrepreneurs uses a structural equation model with standard deviation, mean and multi-group analysis. It has been collected convenient sampling from Delhi, U.P. and Haryana.

Findings

There is a positive relationship between perceptions of entrepreneurial education and perceptions of innovation. Each of political skills and the recognition of entrepreneurial opportunities mediate this relationship. Political skills and the recognition of entrepreneurial opportunities have a sequential mediating effect.

Research limitations

This study is limited to the sample size and other information available from Delhi, U.P. and Haryana. The result might be affected when taken from different regions. This study only judges the evaluation of entrepreneurship education from the unilateral aspect of the entrepreneurs. It has been used specific methodology, further enrich and develop the research models and conclusions.

Practical implications

Our findings have significance for educational entrepreneurs, program developer, and legislators. This research has significant theoretical and practical consequences for researchers, academics, and aspiring entrepreneurs.

Originality/value

The study contributes empirically and theoretically by focusing on an area of research that has gotten less attention, particularly in the context of the study environment. This is the inimitable attempt to provide the most exhaustive and comprehensive examination of this topic. In addition, a comprehensive future research agenda is provided.

Keywords: Political skills, recognition of entrepreneurial opportunity, entrepreneurial education, innovation, perceptions, multiple mediating effects.

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12. FOOD SECURITY AND THE PUBLIC DISTRIBUTION SYSTEM

Nikhil Kumar[1] and Dr. Puneet Bhushan[2]
[1]Assistant Professor, Department of Commerce, Govt. College Bhoranj (HP), India
(Email: nikhil201848@gmail.com)
[2]Assistant Professor, HPUBS, HPU-Shimla, India

Hunger eradication and poverty alleviation are the main objectives to uplift the rural community in India. Food Security is the first and foremost requirement of every human being. India is experiencing a food crises in the most recent Global Hunger Index (GHI). India ranked 107 out of 121 countries in the GHI 2022. This index is based on the four indicators- undernourishment, child wasting, child mortality and child stuning. Public Distribution System (PDS) is a network of distributing essential food grains to the weaker section of the society at reasonable prices. The British Govt. introduced rationing system in India during second world war. With a network of more than 5,30,000 Fair Price Shops (FPSs) for the distribution of commodity throughout the country, the PDS perhaps the largest distribution network of its type in the world. The study has been restricted to one state of India. The primary data was collected through a well-structured questionnaire. Study traces the satisfaction level of respondents about PDS and also put some light on the problem side.

Keywords: Hunger, Poverty, Food Security, Global Hunger Index, Public Distribution System

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13. SECURITY ON THE INTERNET OF THINGS WITH CHALLENGES AND SOLUTIONS

Omprakash Dewangan[1] and Proshanta Sarkar[2]
[1]Kalinga University, Raipur
(Email: omprakash.dewangan@kalingauniversity.ac.in)
[2]Kalinga University, Raipur
(Email: prosanta.sarkar@kalingauniversity.ac.in)

This paper provides an overview, an investigation, and an analysis of the security of the Internet of Things (IoT). The goal of the Internet of Things is to connect everyone to anything, anyplace. In contrast to the fixed Internet, an IoT connects a lot of machines, resource-constrained devices, and sensors via various wired and wireless networks in addition to people. The three fictitious levels that make up an IoT are typically the realization, network, and application layers. Security issues both within and between these layers are described in this study. Additionally, a number of security recommendations for each layer are provided. Additionally, previous efforts to enforce security for each IoT layer and the corresponding countermeasures are discussed. The study concludes by outlining future directions for obtaining the IoT.

Keywords: Availability, Confidentiality, Integrity, Policies, IoT

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14. FACTORS AFFECTING DECISION-MAKING IN PURCHASING PRODUCTS ON DIGITAL PLATFORM OF ELDER PEOPLE IN BANGKOK

Rattanaporn Bowonwattanawanich[1], Pathompong Bumrerb[2] and Kamonthip Tomet[3]
[1]Faculty of Management Sciences, Dhonburi Rajabhat University, Bangkok, Thailand
(Email: 6341272009@dru.ac.th)
[2]Faculty of Management Sciences, Dhonburi Rajabhat University Bangkok, Thailand;
https://orcid.org/0000-0002-3306-4532
(Email: pathompong.b@dru.ac.th)
[3]Faculty of Management Sciences Dhonburi Rajabhat University, Bangkok, Thailand
(Email: kamonthip.t@dru.ac.th)

This research has the following objectives: 1.) To study the demographic factors which is gender, age, education, income, occupation effecting on a decision making in purchasing of elder people product in Bangkok 2.) To study a marketing factor effecting on a decision making in purchasing of elder people product in Bangkok. This research is using a quantitative methodology by collected the data by 384 questionnaires in Bangkok area which is analysis applies descriptive statistics method to discover

frequency rate, percentage rate, average rate, standard deviation. Moreover, this research employs the analyzing inferential statistics method by multiple regression analysis statistics. The result found:

i. Demographic factors such as gender, age, marital status, education, income, occupation has not affected on a decision making in purchasing of elder people product in Bangkok.
ii. The analysis of the marketing factors effect on a decision making in purchasing of elder people product in Bangkok significance level at 0.05 by follows: 1.) Product factor, the warranty, and the guarantee of operator with a predictive weight of 50% 2.) Price factor, the price was cheaper than the market price with a predictive weight of 40% 3.) Promotion factor, The advertising / publicity or merchandise and special services regularly and a variety of channels with a predictive weight of 15.5 % 4.) Place factor, a free shipping policy with a predictive weight of 14.9 %

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15. INTERNAL CONTROL SYSTEM: A BIBLIOMETRIC ANALYSIS FOR SUSTAINABLE GROWTH

Preeti Kapoor[1] and Dr. K.R Jain[2]
[1]Research Scholar, D.A.V (P.G) College, Dehradun
(Email: preetikapoor31995@gmail.com)
[2]Associate Professor, D.A.V (P.G) College, Dehradun
(Email: drkrjain@gamil.com)

An internal control system is to ensure the efficacy of business organizations. This works with the appropriate reporting of annual reports with compliance of laws and regulations. The internal control system (ICS) is an evaluative component of an audit tool that can provide a strong and competent working condition. Higher educational institutions help in major growth of society. Transparency is required to ensure the compliance thus a narrative view will represent how the research was conducted and will provide better outcomes.

Keywords: Internal Control, Higher Educational Institution, Efficiency, Narrative

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16. EFFECT OF AQUEOUS AND ALCOHOLIC EXTRACT OF ACHYRANTHES ASPERA LEAVES ON TOTAL SERUM PROTEIN OF CLARIAS BATRACHUS

Rachana Negi
Department of Zoology, Sai College, Sector 6, Bhilai

As we know that the plants are important for us and we cannot imagine the life and its growth without plants. Plant has been the key role to human welfare from the earliest drawn of human existence. It provides food, oil, medicines, fibers, cloths, fragrances, dye etc and these are very cheaper and safe phytochemical substance that always influence humans. Many plants extract plays important role in aquaculture by enhancing the resistance of cultured fish against disease. One of the important medicinal herbs *Achyranthes aspera* (Amarantheceae) played a key role in folk medicines. It is erect perennial herbs commonly known as Latjeera or chirchita. It has used in treatment of diabetes, fever, dysentery, piles, pheumonia, kidney stones, antioxidant, antimicrobial, analgesic and hypoglycaemic activities. Hence the present study was conduct to investigate the effect of aqueous and alcoholic extract of *Achyranthes aspera* on serum protein in fresh water air breathing catfish *Clarias batrachus.* The fish of mixed sex and about 70-80gm in weight were collected from local fish market of Raipur, treated with 0.2 % $KMnO_4$ Solution to dermal infection, acclimatized under laboratory condition for 7 days. 36 fish were divided into three groups one treated as Control and group 2 and 3 treated as test receiving 50 ppm and 100 ppm of aqueous and alcoholic group of *Achyranthes aspera* leaf. Blood serum were collected every seven days of interval up to 28 days. Data obtained were subjected to ANOVA. The statistically significant experiment of treated were compared to control. The Significant changes were observed from 7 days of interval. The result of ANOVA revealed statistically significant in main effect of treatment ($P < 0.01$). The significant differences were noticed between control, 50 ppm and 100 ppm on total serum protein.

Keywords: *Achyranthes aspera*, Aqueous and Alcoholic, *Clarias batrachus,* Serum protein.

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17. RECENT TRENDS IN BIO-ADSORBENTS FOR THE REMOVAL OF HEAVY METAL IONS FROM THE SEMICONDUCTOR INDUSTRY

Sushma Sandey, Amit Keshav and R. Manivannan
National Institute of Technology Raipur, Chhattisgarh, India
(Email for the Corresponding author: rmani.che@nitrr.ac.in)

Semiconductor chip plays an important role in our day-to-day life. They are made of small components like transistors, which are used in mobile phone, computers, laptop etc. Heavy metal ions are widely used in semiconductor industries. Discharges from semiconductor industries are generally dumped in water reservoirs. Various heavy metal ions like cobalt, chromium, lead are used in the chip fabrication process. Heavy metals ions are detrimental for human health and environment. Therefore, it is essential to remove the heavy metals beforehand. There are several methods for removal of heavy metal such as adsorption, ion exchange, reverse osmosis, electro dialysis, ultra-filtration, flotation etc. Adsorption is an effective, simple and economical technique for removal of heavy metal ions. In recent years, bio-adsorption has piqued the interest of researchers around the globe for the effective adsorption of heavy metal ions. Bio-adsorbents are generally prepared from agriculture waste and industrial by products thereby have functional group like carboxyl, hydroxyl which makes it easily to adsorb the metal ions. Bio- adsorption materials have high sorption capacity, cost effectiveness thereby making it economical alternative for heavy metal removal and waste waters treatment. In this review, we discussed the removal of heavy metal ions such as cobalt, chromium, lead, cadmium, mercury from different types of waste water sources. The main aim of this review is to highlight the synthesis and efficacy of bio-adsorbents from different plant sources.

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18. FARMERS' PERCEPTION OF ZERO BUDGET NATURAL FARMING IN GOPALGANJ DISTRICT OF BIHAR

Sweta Sahoo[1] and Ashish Anand[2]
[1](Corresponding Author), Ph.D. scholar, Department of Agricultural Extension, IAS, SoA, Bhubaneswar, Odisha
(Email id: swetasahoo735@gmail.com)
[2]Ph.D. scholar, Department of Extension Education, CoA, OUAT, Bhubaneswar, Odisha
(Email id: ashishanand027@gmail.com)

The study investigated farmers' perception on Zero Budget Natural Farming (ZBNF) in the Gopalganj district of Bihar with the specific objectives of assessing over all farmers' perception, the determinants of their perception, sources of information for ZBNF, constraints in practicing ZBNF and suggestions for sustainable ZBNF adoption.120farmers practicing ZBNF were purposively selected from ten ZBNF clusters of Gopalganj district. The data were collected through personal interview with the help of pre structured interview schedule and were analyzed using frequency counts, percentages and correlation analysis. Majority (42.50%) of the farmers had high level of perception on ZBNF followed by low level (33.33%) and high level (24.17%). Trainings on ZBNF were the major source of information for majority of the farmers

(88.33%). With regard to relationship between Socio economic profile and Perception, Trainings undergone, innovativeness, ZBNF experience, farm size, income, education and extension contacts were found to have significant positive relation with farmers perception at 0.01% level, whereas farming experience had significant positive relation at 0.05% level. Non availability of ZBNF inputs was the major constraint faced by majority of the farmers (82.50%). Creating awareness among farmers, providing training to farmers were major suggestions given by the practising farmers.

Keywords: Clusters, Perception, Pre-structured interview schedule, Sustainable, ZBNF

19. A REVIEW OF SMART FARMING TO IMPROVE CROP PRODUCTIVITY

Yukti Kesharwani
Dr. C. V. Raman University, Bilaspur, India
(Email: yuktikesharwani20@gmail.com)

More than half of India's population is still completely dependent on agriculture for its livelihood. It has been seen that most of the farming is done in rural areas, due to which agriculture and its other sectors are their only employment. From the commercial point of view, there has been a lot of change in the business of agriculture. Earlier the scope of trade related to agriculture was only till India, but now trade relations are being established with other countries as well. That is, agriculture is not only supplying food to India but also supplying food to other countries. Since independence, there has been a lot of change in the business of India. After independence, the government of India took out many plans for the development of the country, as a result of which there was a considerable increase in Indian business.

20. A REVIEW OF AN APPROACH TO REDUCE LITTER MOUNTAIN USING ARTIFICIAL INTELLIGENCE

Bharti Dwivedi
Dr. C. V. Raman University, Bilaspur, India

Bilaspur city is about 400 years old and the name of “Bilaspur” is named after the Fisher-woman named “Bilasa”. Despite of many natural calamities, Bilaspur has developed a lot. Bilaspur district is situated between 21.47° to 23.8° north latitudes and 81.14° to 83.15° east longitude. There has to be a systematic afford in the improvement in various factors like institutional arrangement, financial provisions appropriate technology, operation management, human resource development, public participation

and awareness, and policy and legal frame work for solid waste management system. Municipal solid waste made of household waste, disinfection, and waste from streets. This waste is generated mainly from residential and commercial complexes. For rising urbanization and change in way to life and food habits, the amount of dissipation has been increasing rapidly and the composition has changing.

21. A REVIEW OF CASCADING BEHAVIOUR OF SOCIAL MEDIA NETWORKS

Prapti Pandey
Dr. C. V. Raman University, Bilaspur, India
(Email: kanha.prapti24@gmail.com)

Facebook and Twitter are the most popular social media platform in India. Millions of users are connected from different countries. Sharing of any kind of post in social media plays an important role in the society. There are mainly two types of post, Positive content post and Negative content post. The negative content post is like a virus in a computer, where it may damage the different parts of computer system like hardware, specific software and important files. In a similar way in a social media the negative content text/media damage or hurt the particular people, particular group and the different community. In last decades the cyber-attack increases exponentially.

22. A REVIEW OF A SENTIMENTS-BASED ANALYSIS OF SOCIAL MEDIA USING MACHINE LEARNING

Nitesh Nema
Dr. C. V. Raman University, Bilaspur, India
(Email: niteshnema2011@gmail.com)

Sentiment analysis is a type of text research aka mining. It applies a mix of statistics, natural language processing (NLP), and machine learning to identify and extract subjective information from text files, for instance, a reviewer's feelings, thoughts, judgments, or assessments about a particular topic, event, or a company and its activities as mentioned above. This analysis type is also known as opinion mining (with a focus on extraction) or affective rating. Some specialists use the terms sentiment classification and extraction as well. Regardless of the name, the goal of sentiment analysis is the same: to know a user or audience opinion on a target object by analyzing a vast amount of text from various sources.

23. A REVIEW OF MULTIMODAL BIOMETRIC RECOGNITION SYSTEM

Yamini Govardhan
Dr. C. V. Raman University, Bilaspur, India
(Email: yaminigowardhan92@gmail.com)

Biometric system plays an important role in the human authentication. It enhances the security level. There are various aspects for the biometric system to enhance the security level. There are many unique geometrical formulations formed from the human face and knuckle vein. This paper reviews the various algorithms available for detecting the biometric system and also suggest the various parameter for the biometric system.

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24. A REVIEW OF TEXT DETECTION AND RECOGNITION USING MACHINE LEARNING TECHNIQUES

Vishnu Kant Soni
Dr. C. V. Raman University, Bilaspur, India
(Email: vishnu.soni@lcit.edu.in)

A review of the text analysis of social media data for apprehensiveness or dejection detection utilizing various artificial intelligence techniques. In the survey, it was optically canvassed that social media data which consists of texts, emoticons and emojis were utilized for the sentiment identification utilizing various artificial intelligence techniques.

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25. ISSUES AND CHALLENGES FOR SUSTAINABLE DEVELOPMENT IN ASIAN COUNTRIES

Ruchi Sachan[1] and Dr. Shweta Tiwari[2]
[1]HOD, Department of Education, MAIC, Raipur (CG)
(Email: ruchisachan74@gmail.com)
[2]HOD, Department of Commerce, MAIC, Raipur (CG)
(Email: shwetatiwari81@gmail.com)

The development in the countries is proceeded in a manner which does not limit the resources to one generation instead elongate the resources to various generations later. This was brought up by the Brundtland report in 1987 concentrating on the negative effects of globalization and industrialization has led the United Nations to have a list of goals decided to resist the environmental degradation as well as crucial issues caused

by global growth like child and women's health, education, poverty. For a better world and ecosystem, United Nations has pledged to have targets and objectives which would assist the nations have a healthy economic growth. The UN has targeted 2030 as the year of achievement to all the goals. The performance of the Asian countries is measured through the SDG Indices in which Bhutan, Maldives and Sri Lanka have been the top performers in 2022. Despite the efforts by the respective governments there has been significant drop in the performances every year. There are many challenges and Issues for the Achievement of Sustainable Development is poverty, unemployment Pandemic, border Conflicts, technology barriers and differences in countries has caused trust issues among countries. With this, countries have started spending more in their defense than in education or health. This is causing financial crunch in the countries to spend funds for the achievement of goals. Hence, these are reasons for the failure of the goals. Now is the time where people also must be educated sufficient since it is not just the role of government in the achievement of the goals which result in sustainable development. It is the responsibility of the public too to involve themselves into the process so that the success is meant sweeter.

RESEARCH PAPERS

FARMERS' PERCEPTION OF ZERO BUDGET NATURAL FARMING IN GOPALGANJ DISTRICT OF BIHAR

Sweta Sahoo[1] and Ashish Anand[2]
[1](Corresponding Author), Ph.D. scholar, Department of Agricultural Extension, IAS, SoA, Bhubaneswar, Odisha
(Email id: swetasahoo735@gmail.com)
[2]Ph.D. scholar, Department of Extension Education, CoA, OUAT, Bhubaneswar, Odisha
(Email id: ashishanand027@gmail.com)

INTRODUCTION

Before 1940, when there was a lower population than there is today, organic farming was popular around the world, and yields were comparable to those of prehistoric times. The primary goal of the farmers was to produce enough food to support their families and themselves. However, as the population of the globe grew, it became impossible to feed the people by cultivating organic food. Due of this, advanced technology had been developed, including better methods of feeding a population that had nearly doubled in size. Fertilizers, mechanical farming, and biocides like pesticides and herbicides all contributed to higher yields being produced for a large population. These farming practices became integral part of what we know as conventional farming (Melissa, 2003). The Green Revolution encouraged the introduction of novel, highly productive crop types that rely on agrochemicals to create higher yields. Insecticides and fungicides have to be developed to fight these new kinds' frequent susceptibility to illnesses and insect pests.

Reviewing the effects of the green revolution revealed that it has resulted in decreased genetic diversity, increased pest vulnerability, and reduced soil fertility, micronutrient deficiencies, increased soil contamination, a decrease in the availability of nutrient-dense food crops for the local population, the eviction of a large number of small farmers from their land, rural poverty, a rise in tensions and conflicts, and soil erosion are just a few of the issues that this region is experiencing. The agrochemical sector, significant petrochemical firms, agricultural machinery makers, dam builders, and wealthy landowners have benefited from the green revolution(Greenpeace, 2003). In order to function in an ecosystem-friendly manner, alternative agricultural and agro-ecological technologies might be used. While maintaining and boosting agriculture output, 35 it is equally important to be concerned with community health promotion. Subhash Palekar's Zero Budget Natural Agricultural is gaining popularity among farmers as more people look for environmentally and farmer-friendly alternative farming methods. Through the Department of Agriculture, the state government of Bihar has made significant efforts in this area using a cluster strategy to train and educate farmers on Zero Budget Natural Farming. Through the Department of

Agriculture, the state government of Bihar has made significant efforts in this area using a cluster strategy to teach and educate farmers on Zero Budget Natural Farming. Consequently, in the current study, an effort was undertaken to examine how practical farmers perceived ZBNF using the aforementioned specified objectives:

1. To analyze the perception of the farmers on ZBNF(Zero Budget Natural Farming).
2. To study the ZBNF sources of information for the farmers.
3. To assess the relationship between socioeconmic profile of farmers and their perception on ZBNF.
4. To elicit constraints and offer suggestions for ZBNF

MATERIAL AND METHODS

The present investigation was carried out in Gopalganj district of Bihar. About 120 ZBNF practicing farmers from 10 different clusters identified by the Department Of Agriculture were purposively selected for the study. From each cluster, 12 farmers who were fully adopting ZBNF recommended package were selected,thus making the final sample size 120. To analyze the perception of the farmers on ZBNF, an interview schedule was constructed with 16 statements on three point continuum i.e., Agree, Undecided and Disagree and scores of 3,2 and 1 were assigned to the responses accordingly . Correlation analysis was carried out to assess the relationship between profile characteristics of farmers and their perception on ZBNF.Each ZBNF practicing farmer was also interviewed by posing open ended questions so as to unearth sources of information, constraints he/she has experienced and suggestions for sustainable ZBNF adoption. The data were collected by using pre tested schedule employing personal interview method. The responses were scored, quantified, categorized and tabulated using mean, standard deviation, frequencies and percentages.

RESULTS AND DISCUSSION

Perception of farmers of Zero Budget Natural Farming

The perception of the farmers on Zero Budget Natural Farming (ZBNF) was analyzed in terms of overall perception of the farmers and item analysis of their perception and the results presented in Table 1 & 2.

Table 1. Perception of the farmers on ZBNF

S.No	Perception	Agree		Undecided		Disagree	
		f	%	*f*	%	*f*	%
1	ZBNF is relatively advantageous over chemical farming	48	40.00	28	23.33	44	36.67
2	ZBNF gives more net returns	29	24.17	45	37.50	46	38.33

3	ZBNF reduces cost of cultivation to a greater extent	51	42.50	17	14.17	52	43.33
4	ZBNF is feasible to adopt in present farming situation	40	33.33	24	20.00	56	46.67
5	ZBNF is complex to adopt	29	24.17	9	7.50	72	68.33
6	Soil will be enriched with ZBNF	105	87.50	6	5.00	9	7.50
7	ZBNF gives sustainable yields	77	64.17	14	11.66	29	24.17
8	ZBNF facilitates natural enemies population	41	34.17	4	3.33	75	62.50
9	Quality production is possible with ZBNF	27	22.50	4	3.33	89	74.17
10	ZBNF is difficult to practice	39	32.50	34	28.33	47	39.17
11	Preparation of asthras is difficult	32	26.67	40	33.33	48	40.00
12	Adoption of ZBNF on large scale is possible	57	47.50	49	40.83	14	11.67
13	Availability of traditional varieties seed is difficult	38	31.67	15	12.50	67	55.83
14	Weed management is difficult in ZBNF	57	47.50	30	25.00	33	27.50
15	Purchasing and maintaining cows is difficult	62	51.67	13	10.83	45	37.50
16	ZBNF increases microorganisms and earth worms in soil	76	63.33	0	0.00	44	36.67

Table 2. Overall perception of the farmers on Zero Budget Natural Farming

Perception category	**Frequency**	**%**
Low (< Mean-SD)	40	33.33
Medium (Mean+/-SD)	29	24.17
High(>Mean+SD)	51	42.50
Total	**120**	**100.00**
Mean= 34.67, SD=3.86		

Results from the Table 1 and 2 shows that Majority (42.50%) of the farmers had high perception followed by low (33.33%) and medium level (24.17%) on Zero Budget Natural Farming.Regarding Table 1,it is shown that the statement of Soil will be enriched with ZBNF have agreement among (87.50%) of farmers followed by ZBNF gives sustainable yields(64.17%), ZBNF increases micro organisms and earth worms in soil (63.33%), Purchasing and maintaining cows is difficult(51.67%), Adoption of ZBNF on large scale is possible(47.50%) ,Weed management is difficult in ZBNF(47.50%), ZBNF reduces cost of cultivation to a greater extent(42.50%), ZBNF is relatively advantageous over chemical farming(40.00%), ZBNF facilitates natural enemies population(34.17%), ZBNF is feasible to adopt in present farming situation(33.33%), ZBNF is difficult to practice(32.50%), Availability of traditional varieties seed is difficult(31.67%), Preparation of asthras is difficult(26.67%), ZBNF gives more net returns(24.17%)) ZBNF is complex to adopt(24.17%) and Quality production is possible with ZBNF(22.50%). Similar results were reported by Dipeolu *et al.* (2006), Tratnik *et al.* (2009), Oyesola *et al.*(2011) and Suresh and Himansu (2015) with respect to farmers perception on organic farming. Perception of the farmers on ZBNF clearly indicated that even though there were lot many advantages of ZBNF, few aspects like preparation of ZBNF inputs, weed management and inability to practice on large scale need to be addressed to facilitate its large scale adoption by the Government through line departments.

Source of Information for ZBNF Farmers

Table 3. Distribution of ZBNF farmers based on their sources of information

S.No	Information source	Frequency	Percentage
1	Training on ZBNF	106	88.33
2	Community Resource Persons	94	78.33
3	Department of Agricul ture	87	72.50
4	Practising farmers	83	50.83
5	Television	59	49.17
6	Newspaper	37	30.83

It could be inferred from table 3 that trainings on ZBNF were the major source of information for majority of the farmers (88.33%). This is because the identified cluster farmers were trained through department of Agriculture on a regular basis.Second position(78.33%) was held by information from community resource persons as they were available locally followed by Department of Agriculture (72.50%), practicing farmers (50.83%),television (49.17%)and newspaper (30.83%).

Relationship between profile characteristics of ZBNF farmers and their perception

Table 4. Relationship between profile characteristics of farmers and their perception on ZBNF

S.No	Variable	Correlation coefficient (r)
1	Age	0.19 NS
2	Education	0.64**
3	Income	0.67**
4	Farming experience	0.23*
5	ZBNF experience	0.74**
6	Farm size	0.68**
7	Extension contact	0.45**
8	Innovativeness	0.62**
9	Trainings undergone	0.78**

The results in table 4 reveal that trainings undergone, innovativeness, ZBNF experience, farm size, income, education and extension contacts were found to have significant positive relation with farmers perception at 0.01% level, whereas farming experience had significant positive relation at 0.05% level. The reason behind this trend may be the trainings undergone on ZBNF, ZBNF experience, innovativeness, education and extension contact facilitated the farmers to gain good knowledge on ZBNF, skills in preparation of asthras and overcoming practical difficulties in ZBNF. Age was the variable which had no significant relation with the perception.

Constraints expressed by ZBNF farmers

S.No	Constraint	Frequency	%
1	Non availability of ZBNF inputs	99	82.50
2	Lack of information on preparation and use of asthras	93	77.50
3	Low yields in initial years	91	75.83
4	Weed management is difficult	83	69.17

5	Preparation of asthras	77	64.17
6	Intensive labour requirement	65	54.17
7	Lack of skills in preparation of asthras	59	49.17

Table 5. Constraints expressed by ZBNF farmers

From table 5, it could be observed that majority (82.50%)of the ZBNF farmers felt non availability of required inputs was the major constraint for ZBNF.This might be due to risk involved in preparation of various asthras and their preservation. More than three fourth (77.50%) of farmers expressed lack of information on preparation and use of asthras was another constraint hindering them to extend ZBNF on a large scale.Other major constraints expressed by the farmers were low yields in initial years (75.83%), difficulty in weed management (69.17),difficulty in preparation of asthras (64.17%), and intensive labour requirement (54.17%). Almost half (49.17%) of the farmers felt lack of skills was another difficulty. Even though farmers were theoretically trained on ZBNF, they were lacking practical experience in preparation of asthras. Non availability of labour was another threat hindering farmers to adopt ZBNF on large scale.

Suggestions of ZBNF farmers

Table 6. Suggestions of ZBNF farmers

S.No	Suggestion	Frequency	%
1.	Creating awareness among farmers	97	80.83
2.	Providing trainings to the farmers	89	74.17
3.	Application of asthras through fertigation	86	71.67
4.	Making ZBNF inputs available locally	77	64.17
5.	Providing market support for ZBNF produce	73	60.83
6.	Giving wide publicity on the benefits of ZBNF	65	54.17

Suggestions of the farmers for sustainable adoption of ZBNF were presented in table 6. It could be inferred from the table that creating awareness among farmers (80.33%), providing trainings to the farmers (74.17%), application of asthras through fertigation (71.67%), making ZBNF inputs available locally (64.17%),providing market support for ZBNF produce (60.83%), giving wide publicity on the benefits of ZBNF (54.17%) would facilitate the farmers to adopt ZBNF continuously.

CONCLUSION

Based on the findings of the study, it can be concluded that the majority of the farmers had high level of perception on ZBNF. The farmers had access to information on ZBNF through trainings, community resource persons, departmental officers, practicing farmers and through television. Trainings undergone, innovativeness, ZBNF experience, education, income and extension contact were found to have significant and positive relation with their perception on ZBNF. The major constraints expressed were non availability of ZBNF inputs, lack of information on preparation and use of asthras, low yields in initial years and weed management. Hence feverish efforts are needed to facilitate farmers with continuous support through series of trainings on technical know-how to adopt ZBNF.

Conflict of interest

Authors have declared that no competing interests exist.

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FACTORS AFFECTING DECISION MAKING IN PURCHASING PRODUCTS ON DIGITAL PLATFORM OF ELDER PEOPLE IN BANGKOK

Rattanaporn Bowonwattanawanich[1], Pathompong Bumrerb[2] and Kamonthip Tomet[3]

[1]Faculty of Management Sciences, Dhonburi Rajabhat University, Bangkok, Thailand
(Email: 6341272009@dru.ac.th)

[2]Faculty of Management Sciences, Dhonburi Rajabhat University Bangkok, Thailand;
https://orcid.org/0000-0002-3306-4532
(Email: Pathompong.b@dru.ac.th)

[3]Faculty of Management Sciences Dhonburi Rajabhat University, Bangkok, Thailand
(Email: Kamonthip.t@dru.ac.th)

INTRODUCTION

Since the Internet technology was occurred, the way of people life around the world has been merged with the Internet and become part of the daily lives of people in the society because of the internet was a highly effective tool of communication between people around the corner of the world. Especially, today's where the COVID-19 epidemic has impacted the daily life and especially the lock down policy force people change the way they live and the way they consume product. From 2019 to a present day, it three years past the cause of COVID-19 epidemic outbreak has change a business landscape forever especially an occurring of the blooming of E-commerce business [1]. In Thailand there are 50.8 million Internet users, representing 74 percent of the total population 67,091,089 [2] which is make a lot of consumption power in E-commerce business which made the market rise to 396,000-million-baht in 2020, 140% growth from 2019, 963,000 million baht in 2021, 75% growth from 2021 and 900,900 million baht in 2022, growth of 30% from 2021 if classified the size by using the number of full-time employees as a criterion found that most of the e-commerce businesses were small businesses (1–5 workers) 57.90 %, medium-sized businesses (6–50 people) 36.20 %, only 5.90 percent for large business (there are more than 50 people working)[3]. It can be seen that 94.10 % of the entrepreneurs in the e-commerce business are entrepreneurs in the group of small and medium-sized businesses.

Another scenario which has change in Thai market is an aging society situation in Thailand. According to United Nations World Population Ageing report aging society will be a society with people aged 60 years and over living in the area per population of all ages in the same area. and have a rate equal to or greater than 10% or having a population aged 65 years and over living in the area per population of all ages in the same area rate equal to or greater than 7 percent and aged society will be a society with a population aged 60 years and over living in the area per population of all ages in the same area. and have a rate equal to or greater than 20% or having a population aged 65 years and over living in the area per population of all age groups in the same area rate equal to or greater than 14 percent [4]. Currently, there are 11 million elderly people,

or 16.5% of the Thai population, which is expected to be 35% of the country's population by 2050 [5]. From the survey of the Electronic Transactions Development Agency in 2022 found that an elderly people in Thailand internet usage average usage time is 10 hours 22 minutes per day, use social media at 91.2% and pay for goods and services at 60.6% [6]) The data obtained from the research factors effecting on a decision making in purchasing product on E-commerce platform of elder people in Bangkok support entrepreneurs in the group of small and medium-sized businesses engaged in the e-commerce business to be able to develop competitive potential to be able to enter the trade arena with the highest efficiency.

Research objectives:

1.To study the demographic factors which is gender, age, education, income, occupation effecting on a decision making in purchasing of elder people product on E-commerce platform in Bangkok

2.To study a marketing factor effecting on a decision making in purchasing of elder people product on E-commerce platform in Bangkok.

LITERATURE REVIEW

Marketing mix concept

Kotler & Keller [7] defines the marketing mix refers to the set of actions, or tactics, that a company uses to promote its brand or product in the market as follows: 1.) Product is everything that is offered by the business to meet the needs of the customer satisfaction 2.) Price is a product value in monetary terms 3.) Place is the structure of the channel, which consists of institutions and activities 4.) Promotion is the communication of information between sellers and buyers to create attitudes and buying behavior.

Consumer behavior concept

Consumer behavior refers to the behavior in which a consumer searches, purchasing, using, evaluating, and disposing on products and services in anticipation of meeting his or her needs [8].

Consumer decision making concept

Consumer decision making is a process used by consumers regarding the market transactions before, during, and after the purchase of a good or service. It can be seen as a particular form of a cost–benefit analysis in the presence of multiple alternatives [9]

E-commerce concept

E-commerce is the activity of electronically buying or selling of products on online services or over the Internet. E-commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing,

online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems [10]

From the Marketing mix concept Kotler and Keller along with the study of Bumrerb & Nakkasem which study factors influencing decision making in purchasing product on E – commerce which found the marketing mix factors effect on decision making in purchasing product on E- Commerce significance level at 0.05 and the consumer behavior [11] concept of Francesco and the research of Kanittinsuttitong et al. which study potential of E - commerce usage in Tourism business, Case study of village Keeree Wong Kamlang district Lanska district Nakhon Sri Thammarat [12] and the E-commerce concept of Zhouying which create the research conceptual framework as following:

RESEARCH CONCEPTUAL FRAMEWORK

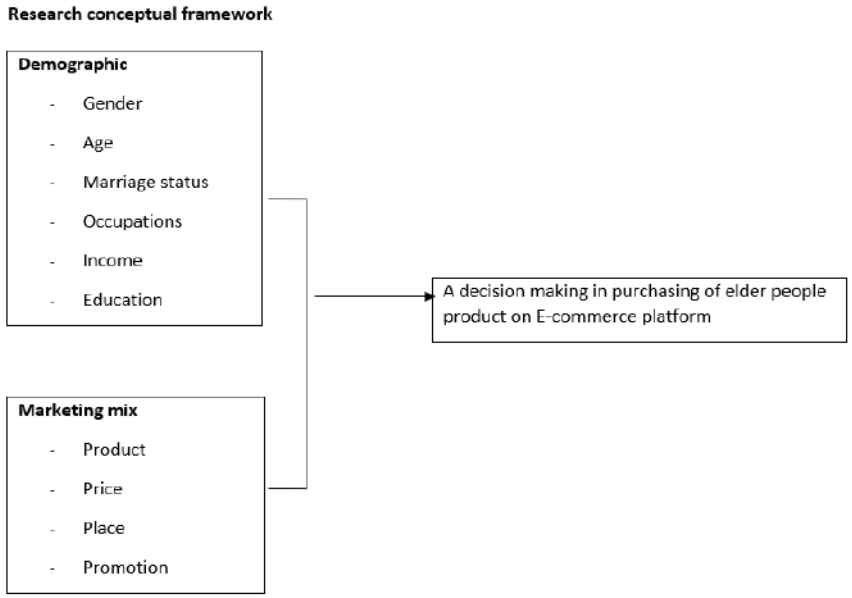

Fig. 1. Research conceptual framework

RESEARCH METHODS

Populations

The population in this research study was an elder people who used to purchase goods/services on E-commerce platform.

Sample group

Because of an elder people who used to purchase goods/services on E-commerce platform are so many and the exact number is unknown. The researcher determined the sample size by using formula for calculating the case of unknown population size of Cochran [13] as follows:

$$n = \frac{p(1-p)z^2}{d^2}$$

when n is population size.

p is proportion of the population which has the attribute in question

z is the desired level of precision which is 1.96 or a 95 % confidence level

d is the maximum error occurred

$$n = \frac{0.5\ (1 - 0.5)\ 1.96^{\,2}}{0.05^{\,2}}$$

$$= 384$$

The study will be selected from the 384 population with characteristics that meet the study objectives which is an elder people who used to purchase goods/services on E-commerce platform.

The research tools

The research tool is a questionnaire created by the researcher based on the data studied from the concepts and theories about consumer behavior, consumer decision making concept, and marketing mix.

The research tool quality inspection

1. Validity of the questionnaire, the researcher created a tool for measuring this research by using theoretical concepts as well as related works as a guideline for creating a questionnaire and bringing the questionnaire created to consult 3 experts. This questionnaire has index of item – objective congruence (IOC) between 0.67 to 1.00 which an IOC value of 0.701.

2. Reliability, the research has led survey of the 30 series to test a sample of a population like the samples group tested the confidence of a query using Cronbach's alpha [14] using software processing. The reliability value of the questionnaire was 0.821 which more than 0.70, That is mean the questionnaire has a reliability.

Statistical analysis

Applies descriptive statistics method to discover frequency rate, percentage rate, average rate, standard deviation for demographic factors and analyzing inferential statistics method by multiple regression analysis statistics for a marketing mix factor.

RESEARCH RESULT

The respondents were 384 of consumers who used to buy goods/services on E-commerce platform in Bangkok, most of them were female, aged between 60-65 years old, bachelor's degree, married status, have a monthly income of 20,000 - 30,000 baht, source of the income from a pension fund.

Table 1. Multiple Regression of marketing mix.

Marketing mix	A decision making in purchasing of elder people product on E-commerce platform				
	B	Std.Error	Beta	t	Sig
(Constant)	**2.259**	**.696**		**3.247**	**.001**
Product	**.517**	**.067**	**.500**	**7.669**	**.000**
Price	**.403**	**.053**	**.400**	**7.656**	**.000**
Place	**.116**	**.041**	**.149**	**2.811**	**.005**
Promotion	**.137**	**.044**	**.155**	**3.455**	**.001**
R =.584 R^2= .341 Adj.R^2= .330 S.E.= .574					
F = 29.03 Sig = .000					

The result from the multiple correlation coefficient analysis was .584, the result of coefficient of determination (R Square) was .341 or 34.1 % and the adjusted of coefficient of determination (Adjusted R Square) was .330 or 33.0 % showed that marketing mix can use to predict a decision making in purchasing of elder people product on E-commerce platform, it was found that: product, price, promotion and place a statistical significance level at 0.01. It is expressed as a prediction equation in raw score form as follows:

y = .500 product + .400 price +.155promotion +.149 place

DISCUSSION AND CONCLUSIONS

The purpose of this research is study factors effecting on a decision Making in purchasing product on E-commerce platform of elder people in Bangkok, the results can be discussed as follows:

i. Demographic factors such as gender, age, marital status, education, income, occupation has not affected on a decision making in purchasing of elder people product in Bangkok a statistical significance level at 0.01. except source of incomes consistent with the study of Swimberg et al. in 2018 [15] whose study examining a psychological sense of brand community in elderly consumers especially baby-boomer segment source of income are the most factor that

effecting on a psychological sense of brand community of baby-boomer segment in UK and consistent with the result from the purchase behavior and opportunities of buying clothes and shoes for the elderly customer in Thailand of Pathomsirikul [16] The research findings were the personal factors of gender, educational background, income, income resources affect their choices of buying the outfits used for working, casual clothes, and comfortable shoes for health.

ii. The marketing factors effect on a decision making in purchasing of elder people product in Bangkok a statistical significance level at 0.01 by follows:

Product effect on a decision making in purchasing of elder people product in Bangkok a statistical significance level at 0.01 are the warranty, and the guarantee of operator consistent with Putsis & Guevara [17] whose studied collective market, consolidated goods and the spread of goods across regions and cultures the result found that 92.07% of consumers will choose to use e-commerce business with a variety of product, have a system for detailing the products shown on the product, labels, real user reviews and supporting research, have a warranty system, have a presentation of product quality certification certificates through various world standard organizations such as ISO, CE, ECO Cert, More than competitors in the system which have a diversity of products and services, product details that have a guarantee and a reservation system, detailing the products shown on the product, labels, real user reviews and supporting research, But did not have a presentation of product quality certification certificates through various world standard organizations.

Price effect on a decision making in purchasing of elder people product in Bangkok a statistical significance level at 0.01 is price is cheaper than the market price consistent with Kotler's [17] marketing mix concepts and theories by price is product value in monetary terms. Price is the cost of a customer and will compares the value of the product to the price of the product, if the value is higher than the price, the customer will buy the product and consistent with the concept of a brand value of Burerb [18] Therefore, the pricing strategy must consider the customer acceptance of the value of the product. A marketer must make consumer perceives the value of the product higher than the price of the product, the cost and related costs of the product, as well as the competitive environment, especially e-commerce businesses where consumers have less attitudes about the value of the product on the displayed price than the value of the product when compared to the product on the front of the general store [19].

Promotion effect on a decision making in purchasing of elder people product in Bangkok a statistical significance level at 0.01 is the advertising / publicity or merchandise and special services regularly and a variety of channels consistent with the result of the research of Bumrerb & Nakkasem [20] whose study factors influencing decision making in purchasing product on E – commerce which is the marketing mix factors effect on decision making in purchasing product on E- Commerce significance level at 0.05, and in the aspect of promotion by the advertising / publicity or merchandise and special services regularly.

Place effect on a decision making in purchasing of elder people product in Bangkok a statistical significance level at 0.01 is a free shipping policy which is consistent with the studied of Chioveanu [21] which studied advertising and promotion factors affecting shopping behavior on amazon prime apps in the UK in terms of beauty eye-catching and free delivery found that a beauty, eye catching of an application and free delivery are the factors that affect consumers' purchasing decisions.

Recommendations

The result of this research can help entrepreneur know the factors that influencing the consumer's making decision of buying a product on e-commerce business which the government or related agencies should made attention to entrepreneurs in e-commerce business for an analysis of the environment both internal and external factors.

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A GLIMPSE INTO OUR PAST INITIATIVES

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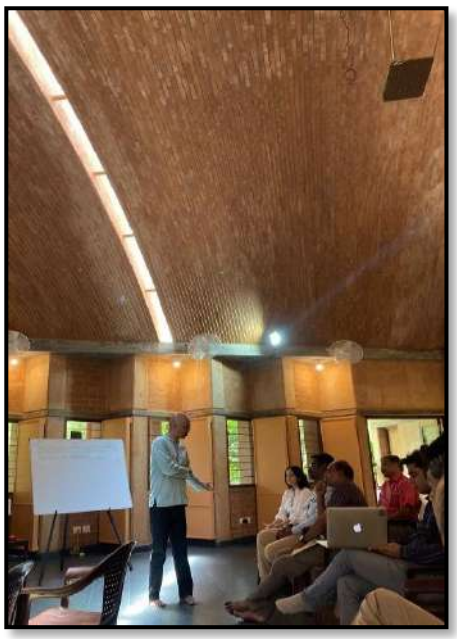

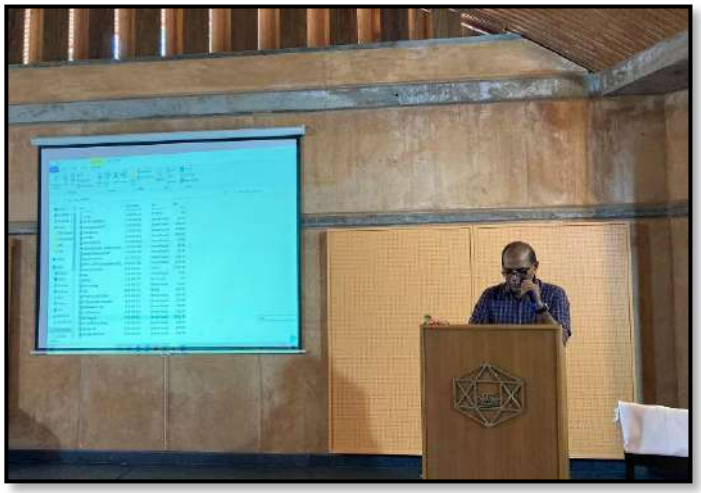

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Research Centre: Sri Aurobindo Yoga & Knowledge Foundation,
Village Funda, 491111, Chhattisgarh, India

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