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REVOLUTIONIZING AGRICULTURE FOR ENHANCING FOOD SECURITY

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Azadi Ka Amrit Mahotsav

- **THE INSTITUTE OF COST ACCOUNTANTS OF INDIA** (erstwhile The Institute of Cost and Works Accountants of India) was established in 1944 as a registered company under the Companies Act with the objects of promoting, regulating and developing the profession of Cost Accountancy.
- On 28 May 1959, the Institute was established by a special Act of Parliament, namely, the Cost and Works Accountants Act 1959 as a statutory professional body for the regulation of the profession of cost and management accountancy.
- It has since been continuously contributing to the growth of the industrial and economic climate of the country.
- The Institute of Cost Accountants of India is the only recognised statutory professional organisation and licensing body in India specialising exclusively in Cost and Management Accountancy.

MISSION STATEMENT

"The CMA Professionals would ethically drive enterprises globally by creating value to stakeholders in the socio-economic context through competencies drawn from the integration of strategy, management and accounting."

VISION STATEMENT

"The Institute of Cost Accountants of India would be the preferred source of resources and professionals for the financial leadership of enterprises globally."

IDEALS THE INSTITUTE STANDS FOR

- *to develop the Cost and Management Accountancy profession*
- *to develop the body of members and properly equip them for functions*
- *to ensure sound professional ethics*
- *to keep abreast of new developments*

Behind every successful business decision, there is always a **CMA**

Headquarters
CMA Bhawan, 12 Sudder Street
Kolkata - 700016

Institute Motto

असतोमा सद्गमय
तमसोमा ज्योतिर् गमय
मृत्योर्मामृतं गमय
ॐ शान्ति शान्ति शान्तिः

From ignorance, lead me to truth
From darkness, lead me to light
From death, lead me to immortality
Peace, Peace, Peace

Delhi Office
CMA Bhawan, 3 Institutional Area
Lodhi Road, New Delhi - 110003

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INSIDE COVER STORY JUNE 2022

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DIGITAL TRANSFORMATION

We have expanded our Readership from **1** to **94** Countries

Afghanistan, Algeria, Argentina, Australia, Azerbaijan, Bahrain, Bangladesh, Belgium, Benin, Botswana, Brazil, British Indian Ocean Territory, Bulgaria, Cambodia, Cameroon, Canada, Chile, China, Colombia, Croatia, Czech Republic, Djibouti, Egypt, France, Gambia, Germany, Ghana, Great Britain, Greece, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iraq, Ireland, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Lebanon, Liberia, Lithuania, Malawi, Malaysia, Mauritius, Mexico, Morocco, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nigeria, Oman, Pakistan, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russia, Rwanda, Saudi Arabia, Serbia, Seychelles, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Suriname, Sweden, Switzerland, Syria, Taiwan, Tanzania, Thailand, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States of America, Vietnam, Zaire, Zimbabwe.

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EDITORIAL

Revolutionizing Agriculture for Enhancing Food Security

Innovation in agriculture is a key towards allowing farmers to maintain and increase productivity while reducing emissions, halting biodiversity loss, and improving rural community livelihoods. COVID-19 has exposed the fragility of a global agri-food system that many of us have come to take for granted. Cracks that existed all along have now been revealed at both an industry and consumer level. India's agriculture sector was among the few segments that posted a noticeable growth despite the pandemic concerns. It has been estimated that the agricultural growth rate of India to be near to 3.9 per cent in FY 2022-23, surpassing the 2021-22 growth rate of 3.6 percent approximately. The government's priority shall continue on doubling farmers' income by 2022-23 and becoming a USD 5 trillion economy by 2024-25. A noticeable jump has been noted in exports of agricultural and processed food products during the first five months of the current financial year. The government is likely to incentivize value addition in agriculture, in order to enhance income of the farmers, as it aims to develop the sector even after the withdrawal of farm laws late last year. Value addition services are essential to encourage backward linkages to the farms.

The Budget has earmarked Rs. 2.37 lakh crores as direct payments as MSP (Minimum Support Price) to Rs. 163 lakh wheat and paddy farmers. The Budget assures the implementation of a rationalized and comprehensive scheme to boost domestic production of oilseeds, intending to reduce the country's dependence on imports. The Government will promote chemical-free natural farming across the country. The Government intends to launch a scheme in the PPP (public-private partnership) model to deliver digital and hi-tech services to farmers, which will bring together public sector research and extension institutions, private agritech players, and stakeholders in the agri-value chain. A fund with blended capital will also be raised under the co-investment model, through NABARD. The fund would finance agriculture and rural enterprise startups involved in providing support to farmer producer organizations (FPOs), machinery for farmers on a rental basis, and technology, including IT-based support, among other activities relevant to the farm-produce value chain.

Storage is an important marketing function, and involves holding and preserving goods from the time they are produced until they are needed for consumption. Likewise, logistics management in the agricultural industry ensures that agricultural goods have a continuous flow from manufacturers/suppliers to producers and eventually to every customer's doorstep. The government seems interested in providing incentives over and above the Rs. 10,900 crore production-linked incentives (PLI) scheme for food processing in order to promote the creation of relevant storage and logistics infrastructure.

India is expected to achieve the ambitious goal of doubling farm income by 2022. The agriculture sector in India is expected to generate better momentum in the next few years due to increased investment in agricultural infrastructure such as irrigation facilities, warehousing and cold storage. Furthermore, the growing use of genetically modified crops will likely improve the yield for Indian farmers. India is expected to be self-sufficient in pulses in the coming few years due to concerted effort of scientists to get early maturing varieties of pulses and the increase in minimum support price.

The tech awareness among farmers is on the rise, driven by high internet penetration and mobile connectivity. This is one of the engines driving the sector ahead. The government is also playing an active role in sector development by creating incubators, awarding grants and focusing on public-private partnerships. Starting with 43 Agri-tech startups in 2013, India can now boast of more than 1,000 such startups, and many of them are on the path to becoming unicorns. India's agritech start-ups have been growing at 25% YoY. The agritech startup helps farmers by offering advice from experts on how to manage crops and boost yield. It leverages data and technology to solve farmers' concerns about accessing high quality agri-inputs and bridges the information gap.

CMAs are competent enough to perform Agricultural Costing to assist the policy planners opting balanced approaches towards inclusive growth by enabling optimised resources access and use. CMAs can also advise suitable pricing strategies for enhancing marketability of the farm produce and also apply Cost Management techniques for cost control and cost reduction to increase productivity and consumerism. The Institute has constituted an Agriculture Task Force viz. 'Task Force on Agri Cost Management' with the objective of evolving ways and means of augmenting the farmer's income. The Institute looks forward in extending support to the Government initiatives by way of preparing concept papers and research monographs on Agricultural Costing & Pricing, conducting awareness programmes, courses and discussion sessions on pan India basis to come out with an advisory on the steps to be taken in order to achieve the objectives set by the Government in this regard and extending support to the farmers.

This issue presents a good number of articles on the cover story "Revolutionizing Agriculture for Enhancing Food Security" written by distinguished experts. Further, we look forward to constructive feedback from our readers on the articles and overall development of the Journal. Please send your emails at editor@icmai.in. We thank all the contributors to this important issue and hope our readers will enjoy the articles.

THE MANAGEMENT ACCOUNTANT

PAPERS INVITED

Cover Stories on the topics given below are invited for ***'The Management Accountant'*** for the four forthcoming months

July 2022	Theme	Emerging Trends and Innovation in Internal Audit Practices	Subtopics
August 2022	Theme	The Indian Securities Markets – on the Cusp of Change	Subtopics
September 2022	Theme	Digital agility and Resilience through Enterprise Intelligence	Subtopics
October 2022	Theme	Integrated Supply Chain Management	Subtopics

July 2022 – Subtopics

- The Fundamentals of an effective Internal Audit Practice
- Significance of Internal Audit in Corporate Governance
- Managing the Impact of the Pandemic on Financial Crimes: Role of Internal Auditors
- IT Risk Management & Cloud Security Audit
- Use of RPA in Internal Auditing
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- Exploring Internal Auditor's role in ESG Reporting
- Risk Assessment in Audit Planning

August 2022 – Subtopics

- Managing risks and responding to crises in Indian Securities Markets
- Equity Market Structure: What's next?
- Issuance of Green Bonds to attain Carbon Neutrality
- Indian Commodity Markets in the changing context
- Financial intermediaries: special emphasis to mutual funds, hedge funds and pension funds
- Regulatory Landscape
- Digital Transformation of Capital Markets
- Social Stock Exchange Ecosystem in India
- ESG & Sustainable Finance – Emergence of new era of investing and reporting

September 2022 – Subtopics

- Business Intelligence for SMEs
- Navigating the Business Crosswinds with the Data driven Enterprise
- Data-a core driver for Digital Economy
- Data Architecture for the Digital-first Business
- Cross-border data flows: its crucial role in socio-economic Sustainability of the Nation
- Cloud Technologies: Essential in the domain of Enterprise Intelligence
- Impact of COVID-19 pandemic on digital transformations globally
- Trust, Ethics & Governance
- Bridging the digital divide for an Inclusive Digital Economy

October 2022 – Subtopics

- Supply Chain Risk, Resilience and Re-balancing
- Lessons from Pandemic: Re-imagining Supply Chain
- Challenges and Priorities in Supply Chain Management
- Alternates & Innovative Strategies to Make Supply Chain more Agile & Flexible
- Supply Chain Resilience at the apt cost and effort through visibility
- Role of Logistics and Integrated Supply Chain towards Firm Competitiveness
- Identifying logistics and Supply Challenges and Trade-offs associated with Global Operations
- Resilient Supply Chain Management in a Disruptive World
- Vocal for Local: To boost domestic Supply Chain
- Climate-smart Supply Chain Planning

The above subtopics are only suggestive and hence the articles may not be limited to them only.

Articles on the above topics are invited from readers and authors along with scanned copies of their recent passport size photograph and scanned copy of declaration stating that the articles are their own original and have not been considered for anywhere else. Please send your articles by e-mail to editor@icmai.in latest by the 1st week of the previous month.

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PRESIDENT'S COMMUNIQUÉ

CMA P. Raju Iyer
President
The Institute of Cost Accountants of India

"Learn everything that is good from others, but bring it in, and in your own way adsorb it; do not become others."

- Swami Vivekananda

My Dear Professional Colleagues,

At the outset, I convey my heartiest congratulations to the entire CMA Fraternity for the grand success of the **60th National Cost Convention (NCC) 2022** organised by the Institute on the theme अध्यात्म से आत्मनिर्भरता की ओर **(Self- Reliance through Enlightenment)** on **27th & 28th May, 2022** at AtalBihari Vajpayee Auditorium, Babasaheb Bhimrao Ambedkar Central University, Lucknow. **Yogi Adityanath ji, Hon'ble Chief Minister of Uttar Pradesh** was the **Chief Guest** of the Convention, who shared his valuable video message to the CMA fraternity, which was played during the inaugural session. He congratulated the Institute for organizing a National event on the theme "Self-Reliance through Enlightenment". He stated that Self-reliant India or Atmanirbhar Bharat is not about achieving economic or financial strength, but it also encompasses improving the cultural, psychological, spiritual and religious values of the people of India. He welcomed the CMA professionals to come and play more effective role in supporting the policy makers and business entities with an aim to help India and Uttar Pradesh to become cost competitive, adopt best practices that would promote global investments and catalyse wider employment generation and GDP growth in the State and the country.

Shri Durga Shankar Misra, Chief Secretary, Government of Uttar Pradesh and **Prof. Sanjay Singh, Vice Chancellor, Babasahab Bhimrao Ambedekar University**, Lucknow graced the Inaugural session as our **Special Guests**. CMA Vijender Sharma, Vice President and Chairman, NCC 2022 delivered the welcome address followed by the address by CMA (Dr) Balwinder Singh, Former President & Council Member and Convenor, NCC 2022. I also address the gathering during the inaugural session. Shri Durga Shankar Misra, Chief Secretary, Government of Uttar Pradesh presented the **CMA ICON Awards 2022** to CMA (Prof.) Nageshwar Rao, Vice-Chancellor, Indira Gandhi National Open University (IGNOU), CMA K. Sreekant, Chairman & Managing Director, Power Grid Corporation of India Limited, CMA S. Krishnan, MD&CEO, Punjab & Sind Bank, CMA Yogesh Gupta, IPS, Additional Director General of Police, Kerala for being the role model for the CMA profession, by achieving tremendous success in their respective field and making significant contribution to the society. My heartiest congratulations to the Icons of CMA profession. Shri Durga Shankar Misra also released the NCC Knowledge Pack and Souvenir. The Inaugural session ended with the vote of thanks by CMA Shailendra Paliwal, Chairman, NIRC and Co-Chairman, NCC 2022.

I am happy to inform that **Shri Suresh Kumar Khanna, Hon'ble Minister for Finance and Parliamentary Affairs, Government of Uttar Pradesh** graced the NCC as our **Guest of Honour** on 27th May, 2022 during Technical session 2. The Institute signed a MOU with Indira Gandhi National Open University (IGNOU) in his presence and Institute's publication "Aide Memoire on Infrastructure Financing was also released at the hands of Hon'ble Minister for Finance and Parliamentary Affairs, Government of Uttar Pradesh.

Shri Brajesh Pathak, Hon'ble Deputy Chief Minister, Government of Uttar Pradesh graced the **63rd Foundation Day Celebrations** of the Institute during the 60th NCC as the **Chief Guest** on 28th May, 2022. **BK Radha Didi, Brahma Kumaris Lucknow** gave her blessings to the CMA fraternity during the session on Professional Success through Spirituality. Hon'ble Deputy Chief Minister of Uttar Pradesh released the 4th Edition of the Member's Handbook and exchanged a MOU signed between the Institute & Uttar Pradesh Skill Development Mission (UPSDM) to impart CAT course in the state of Uttar Pradesh (UP). The Institute also signed a MOU with World Trade Center Shamshabad and World Trade Center Visakhapatnam in the presence of Hon'ble Deputy Chief Minister. Further, the CMA One Co-branded RuPay Credit Card exclusively designed for CMA members was also launched on the occasion.

The NCC witnessed the participation by large number of delegates from the different parts of the country and abroad to make it a grand success. The proceedings were telecasted live on the YouTube Channel of the Institute. More details on the 60th NCC are covered in the June 2022 edition of the Management Accountant Journal.

I am grateful to all our eminent guests, dignitaries, speakers, my council colleagues, past presidents, members of regional councils, chapters' representatives, members, students, sponsors, press & media, foreign delegates, Institute's officials for the grand success of this historic national mega event of the Institute.

Meetings with dignitaries

I am happy to inform that I along with CMA Vijender Sharma, Vice President and CMA Shailendra Kumar Paliwal, Chairman, NIRC of the Institute had a meeting with **Shri Yogi Adityanath, Hon'ble Chief Minister of Uttar Pradesh** on 8th May, 2022 and extended an invitation to the Hon'ble CM to be the Chief Guest of the 60th NCC-2022 at Lucknow.

On 23rd May, 2022, I along with CMA Vijender Sharma, Vice President and CMA B.B. Goyal, Former Addl. Chief Adviser (Cost), Ministry of Finance, GoI called on **Smt. Nirmala Sitharaman, Hon'ble Union Minister of Finance and Corporate Affairs** to discuss the matters related to the CMA profession and ongoing activities of the Institute.

I along with CMA Chittaranjan Chattopadhyay, Chairman-Indirect Taxation Committee, CMA B.M. Sharma, Past President, CMA Navneet Jain, Former RCM-NIRC and CMA Varun Sukhija, Chairman-Faridabad, Chapter of the Institute extended greetings to **Shri D.P. Nagendra Kumar, Member (GST, CX, ST & Legal), CBIC, Ministry of Finance** on 9th May, 2022.

CAPA AGM and Members Meeting

I wish to inform that I along with CMA Vijender Sharma, Vice President attended the CAPA Members Meetings and AGM on 24th May, 2022 through virtual mode wherein the recent initiatives taken by CAPA were discussed.

72nd SAFA Board meeting

I along with CMA Vijender Sharma, Vice President and CMA H. Padmanabhan, Chairman, International Affairs Committee & Chairman of SAFA PAIB Committee attended the 72nd meeting of South Asian Federation of Accountants (SAFA) Board held on 30th May 2022 through Video Conferencing.

Seminar on Management Accounting & Summit on Corporate Laws

I am elated to announce that the Institute of Cost Accountants of India has decided to mark the occasion of International Management Accounting Day on the 6th of May by holding Seminar on Management Accounting every year. This has been the first year of this event by the Institute and the Seminar had taken place in Mumbai under the able leadership of CMA Neeraj D. Joshi, Chairman of Management Accounting Committee and actively supported by CMA Dr. Ashish P. Thatte, Chairman of Corporate Laws Committee. A two-day seminar on Management Accounting Day & Summit on Corporate Laws had been jointly organized by the Management Accounting Committee and the Corporate Laws Committee on 6th & 7th May, 2022 in Y.B.Chavan Auditorium Mumbai. I am happy that the seminar involved deliberations on various Emerging Techniques of Management Accounting, New Horizons of Management Accounting and relevant topics on Environment Social Governance keeping Sustainable Development at its core.

It is a matter of great honour for us that the program was graced by the Chief Guest, Shri Prithviraj Chavan former Chief Minister of Maharashtra, former Union Minister, GoI; Guests of Honour Shri Ashishkumar Chauhan, MD

& CEO Bombay Stock Exchange, Shri Lalit Gandhi, President, MACCIA, CMA Asim Kumar Mukhopadhyay, Vice President Corporate Finance, Tata Motors Ltd. and that the deliberations were made by eminent speakers from various industries. I am happy to note that the program was a great success and attended by a huge number of Members, Professionals of various Industries and Students.

Seminar on Cost Excellence- A Sustainable Business Strategy

I am pleased to inform that the Committee on Cost Management for Public and Government Services in association with Bhubaneswar Chapter has successfully organized a 3 - Day Seminar on "Cost Excellence- A Sustainable Business Strategy" during 13th to 15th May, 2022 at IMMT Auditorium, Bhubaneswar, Odisha. **His Excellency Prof. Ganeshi Lal, Hon'ble Governor of Odisha** inaugurated and graced the 3-day Seminar as **Chief Guest** and **CA. Sridhar Patra, Chairman-Cum-Managing Director, NALCO Ltd.** graced as **Guest of Honour**. I addressed the gathering during the Inaugural session along with CMA H Padmanabhan, Chairman, Committee for Accounting Technicians (CAT), International Affairs Committee, Public Relation Committee and AAT Board, CMA Niranjan Mishra, Chairman, Committee on Cost Management for Public and Government Services, CMA Nishant Kumar Singh, Chairman, EIRC and CMA Himoj Mishra, Chairman, Bhubaneswar Chapter of the Institute.

To commemorate the 3-Day Seminar, a Souvenir and bimonthly digest of the Committee on Cost Management for Public and Government Services "The Xtramiles" was released at the hands of His Excellency Hon'ble Governor of Odisha. More than 500 delegates and invitees actively participated in the 3-Day Seminar from PAN India. More details about the Seminar are available in the Journal.

MOU with Birla University

I am pleased to share that the Institute has signed a MOU with Birla Global University, Bhubaneswar on 13th May 2022. The MOU provides for establishing academic collaboration between the Institute and Birla Global University in training programmes, including seminars / webinars/ workshops / conferences, in areas of common interest. It also offers to establish collaboration for exchange of faculty members, course materials, case studies, research publications and other academic & research inputs, and sharing of facilities like infrastructure, library, reading room, etc.

I along with my Council Colleagues CMA Niranjan Mishra and CMA H. Padmanabhan, and CMA S P Padhi, Past Chairman EIRC, CMA Himoj Mishra, Chairman, Bhubaneshwar Chapter and CMA Satya Sunder Mahasuar, Co-opted Member CMPGS attended the MOU signing event and on behalf of Birla Global University, Prof. P. P. Mathur, Vice Chancellor - BGU and Prof. Samson Moharana, Dean, Birla School of Commerce, BGU were present.

Convocation by the Dhanraj Baid Jain College [Autonomous], Chennai

I am happy to share that I was invited by the Dhanraj Baid Jain College [Autonomous], Chennai to address the students as the Chief Guest of the Graduation Day Convocation organized by the College on 17th May at the College Auditorium. I felicitated the Rank Holders and distributed the Degree to 400 UG / PG programmes in the presence of Dr. C. Murugesan, Principal [i/c], Dr. M. Sakthivel Murugan, Professor i/c & Heads of the Departments and Faculty Members. The college expressed their willingness to be part of the Institute's activities and industry academia collaboration.

MOU with Alagapp University and Two Days International Conference

I along with CMA K Rajagopal, Chairman - SIRC, CMA R K Bapulal, Chairman - Madurai Chapter, CMA S Kumararajan , Vice Chairman, Madurai Chapter, CMA D Kalaiselvan, Chairman, Dindigul Chapter, CMA Rakesh Shankar Ravisankar, Member - IAASB participated in the inaugural session of the Two Days International Conference on Contemporary Trends and Challenges in FINTECH Services in VUCA World hosted by the Department of Corporate Secretaryship, Alagappa University on 5th May 2022. The Conference witnessed around 500 participants comprising of students, research scholars, industry representatives and professionals. The Institute signed a MOU with the Alagapp University for Industry- Academia Collaboration.

I now present a brief summary of the activities of various Departments/Committees/ Boards of the Institute, in addition to those detailed above:

BANKING, FINANCIAL SERVICES AND INSURANCE BOARD

The BFSI Board and BFSI department continued to plan and execute numerous activities during the month of May 2022 under the Chairmanship of CMA Chittaranjan Chattopadhyay. The summary of such activities and initiatives are as follows –

- **Meeting with dignitaries by BFSIB Chairman**

I along with CMA Vijender Sharma, Vice-President and CMA Chittaranjan Chattopadhyay, Chairman BFSIB met Shri M.Karthikeyan, Executive Director, Bank of India on 6th May, 2022 and discussed various pertaining issues pertaining to the BFSI sector and how CMAs can play a vital source in various issues pertaining to the Banking sector.

CMA Chittaranjan Chattopadhyay met CMA Arup Sarkar, Member Finance of Damodar Valley Corporation on 18th May, 2022 to discuss various issues pertaining to the profession and participation in the 60th NCC at Lucknow. The Chairman, BFSIB also met CMA Amitava Sinha, Director (Finance), Jute Corporation Limited on 19th May, 2022 for matters of professional interest.

- **Webinar on "Ethics and Corporate Governance-Emerging Trends in India" on 3rd May, 2022**

The Banking, Financial Services & Insurance Board (BFSIB) organized a webinar on 3rd May, 2022 under the leadership of CMA Chittaranjan Chattopadhyay, Chairman, BFSIB, on a contemporary topic on "Ethics and Corporate Governance-Emerging Trends in India" which saw a huge number of participations from Cost and Management Accountants, Bankers and other stakeholders. The Chief Guest of the event and speaker was Shri Laxminarayan Rath, CVO, Bank of India.

- **Representation letters for inclusion of CMAs**

As a continuous effort for further development of the profession in the BFSI sector, BFSIB has represented to various authorities and employers for inclusion of CMAs in the sector as and when such scope has come to the notice of the Institute. I am happy to state that SIDBI has included CMAs for Credit Officer. Bank of India and Punjab National Bank have included CMAs in their advertisement for the post of Credit Officers and Risk Manager.

- **Release of "Aide Memoire on Infrastructure Financing"**

At the 60th NCC, 2022 held at Lucknow, the 2nd publication in the Aide Memoire series namely, 'Aide Memoire on Infrastructure Financing' was released from the hands of the Chief Guest for the event in presence of a large number of dignitaries. I call upon all members, students and other stakeholders to purchase the publication which will be available at the Headquarters Office of the Institute or online from the BFSI portal.

- **Ten days Orientation Programme for vacancies in Bank of India for CMAs**

BFSIB is starting a 10 days' orientation programme for the 484 vacancies released by the Bank of India. CMAs who do not any requisite experience are eligible for the course and they would be provided with 30 hours of rigorous training and mock tests to handhold them to appear for the vacancies in various public sector banks.

- **Workshop on Risk Based Internal Audit (Series- II)**

In view of mandatory implementation of RBIA in banks, NBFC and co-operative Banks the BFSIB would soon be organizing the workshop on Risk Based Internal Audit (Series-II). BFSI has already floated the google forms for expression of interest and based on the feedback the date of the workshop would be announced soon.

- **Certificate Course on General Insurance in association with National Insurance Academy (NIA):**

The 2nd batch admission of the course have already started for the members and students. The course being a unique one, every finance professional should avail the opportunity of enrolling in the course for skill development and capacity building in the Insurance Sector. BFSIB and NIA are developing the modalities of the Level-2 of the certificate course and I am sure that it will also be very popular. I call upon all interested to please fill up the Expression on Interest Form for joining such course.

- **Investment Management Course in association with National Institute of Securities markets (NISM):**

The Batch No. 8 of Level-I admission has started along with Batch No. 4 of Level-II and Batch No. 3 of Level-III respectively. All candidates are requested to take admission

at the earliest to get the benefit of joining the courses at the prevailing fees.

- **Banking Courses:**

The admission for the 7th batch of the Certificate Course on Concurrent Audit of Banks and Certificate Course on Credit Management of Banks respectively have started and Expression of Interest for the 6th batch of Certificate Course on Treasury and International Banking has been floated.

Like all other courses of the Institute, I am sure members and students who will take up the three certificate courses on Banking will greatly benefit towards their skill development and knowledge enhancement. I call upon all members and readers to visit the BFSI section on the Institute's website regularly for further information.

BOARD OF ADVANCED STUDIES & RESEARCH

I am pleased to convey that the Board of Advanced Studies & Research in association with Reliance Industries Ltd. organized a Webinar on a very relevant topic "Auditor & Auditees - the evolving landscapes & relationships" on 31st May 2022. The eminent speakers in the panel were CMA Debasish Mitra, Chairman, Board of Advanced Studies & Research of the Institute, CMA Rajneesh Jain, President & CFO, Reliance Jio, CMA Sachin Mutha, Head of Risk Management, Reliance Jio, CMA John Nadar, Head Audit - IT, Reliance Industries, Sh. Ganesh Radhakrishnan, Head Audit, Reliance Jio, CMA Prakash Loganath, Reliance Industries and Sh. Manoj Prasad, Reliance Industries. More than 1000 professionals, members and students participated in this virtual event. This type of interaction with industry personalities will definitely enrich our professional knowledge.

The Board of Advanced Studies & Research in association with IAASB has started the 1st batch of 'Advanced Certificate Course in Internal Audit' successfully with more than 80 participants. I congratulate CMA Debasish Mitra, Chairman, Board of Advanced Studies & Research and his team members for introducing a bouquet of career-oriented new age courses for the professional enrichment of the members and students of the Institute.

COST AUDITING AND ASSURANCE STANDARDS BOARD (CAASB)

I am happy to inform you about an important technical development taking place. The standards setting body of the Institute, CAASB has come out with an Exposure Draft of Revised Standards on Cost Auditing (SCAs) seeking comments / suggestions from the members and stakeholders. We all know that the SCAs are essential to ensure quality of auditing & reporting and also to monitor, evaluate & regulate the audit services rendered by the Members of the Institute. However, it was felt by the Board that there was a need to revise structure, framework, approach and the list of SCAs covering only the essential and relevant aspects of cost audit. It was decided to redraft & simplify the Requirements and Application Material in each SCA without relying on the International Auditing Standards (ISAs) issued by the IAASB of IFAC.

Accordingly, the CAASB in its 40th meeting held on 18th May 2022 approved the release of Exposure Draft of Revised SCAs containing Restructured Framework, Revised Introduction, Glossary, Requirements & Application Guidance of 18 SCAs, for seeking views/ comments from all stakeholders by giving time of 21 days. The comments / suggestions so received shall be compiled and placed before the CAASB for consideration.

I hereby urge the members to go through the Exposure Draft and offer their constructive comments / suggestions to further improve the text of the Standards, within the last date i.e. 23rd June 2022 at caasb@icmai.in. The draft is being made available on the Institute website and also on the CAASB webpage (https://icmai.in/icmai/caasb/).

CONTINUING EDUCATION PROGRAMME COMMITTEE

During the month, around Forty webinars and programmes were organised by the different committees of the Institute, Regional Councils and Chapters of the Institute on the topics of professional relevance and importance like Activity Based Costing in Manufacturing & Service Industries, ESG & BRS Reporting, Overview of RERA - A Professional Opportunity" and "Importance of Physiotherapy in Daily Life, Providing Visibility to Recording Transactions Using Blockchain Technology By Shifting Double Entry to Triple Entry, Role of CMAs in Power Distribution Sector, Anti-Dumping: Law and Practice Opportunities For Cost Accountants, Ethics and Corporate Governance- Emerging Trends in India and so on. I am sure our members are immensely benefited from the deliberations in the sessions.

DIRECTORATE OF CAT

I am pleased to note the importance of CAT Course, which was evident during the NCC 2022, wherein Shri Yogi Adityanath Ji, Hon'ble Chief Minister of Uttar Pradesh (UP), during his inaugural speech, touched upon the recently signed MoU between the Institute and UP Skill Development Mission for implementing CAT course in the state of Uttar Pradesh. During second day of the NCC and on the occasion of CMA Foundation Day Celebrations on 28th May, 2022, the MOU was exchanged by myself and CMA Vijender Sharma, Vice President with Shri Brajesh Pathak , Hon'ble Deputy Chief Minister of UP, in presence of Chairman-CAT, CMA H Padmanabhan. I am sure the CAT Course under skill development mission of the Centre and states will become immensely popular in Uttar Pradesh State.

⊙ WEBINT

The Committee on Accounting Technicians conducted a WEBINT: Deliberations on Notified The Chartered Accountants, The Cost and Work Accountants and The Companies Secretaries (Amendment) Act, 2022. This WEBINT was the need of the hour in view of the recently notified the Chartered Accountants, the Cost and Works Accountants and the Company Secretaries (Amendment) Act, 2022. To keep members abreast of the development as a result of this act, its thorough and comprehensive analysis was done by CMA B B Goyal, Advisor ICMAI MARF & former Addl. Chief Advisor (Cost), Ministry of Finance along with my Council colleagues, CMA (Dr.) Balwinder Singh, Past President and CMA (Dr.) Ashish P Thatte.

A WEBINT on Indian Accounting Standards (IND AS) 8 -Accounting Policies, Changes in Accounting Estimates & Errors was organised jointly with the International Affairs Committee, Public Relations Committee and AAT Board on 8th May, 2022. I was delighted to see the efficiency of CMA Dr. Gopal Krishna Raju, resource person, in enlightening students and members on IND AS.

I would place on records the efforts of my Council Colleague CMA H Padmanabhan, Chairman-Committee for Accounting Technicians (CAT) for reaching the members and students through WEBINTs and providing them quality learning.

⊙ CAT Course Part-II Online Classes for CAT Students

The e- learning classes for the students pursuing CAT Course Part II have been started from 23rd May, 2022. These classes are being conducted for the first time in line with revised syllabus of CAT Course and are taken by the expert resource persons. I congratulate CAT Directorate for its endeavours under the leadership of Chairman-CAT towards the betterment of course delivery and ensuring quality. I urge students to regularly attend the classes.

⊙ New ROCC

The CAT Directorate sanctioned a new ROCC Udhaan Yuva Bahuudeshiya Mitra Mandal, W-186, which is in Nashik, Maharashtra. I along with CMA Vijender Sharma, Vice President in august presence of Chairman-CAT handed over the ROCC Certificate to this ROCC amid the glitz of NCC-2022. I am sure the new ROCC will produce good number of CAT qualified students from Nashik and surrounding region.

DIRECTORATE OF STUDIES

The Institute has introduced 'World Class Mandatory Online Skills Training' in four modules - SAP, Microsoft, Cambridge University Press Soft Skill and E-filing w.e.f. 11th August 2020 for Intermediate Students. I am pleased to share that so far more than 50,000 Intermediate Students have been successfully trained and assessed in the above-mentioned modules. I must congratulate CMA (Dr.) Balwinder Singh, Chairman, T&EF Committee and his team members successfully implement this path-breaking training scheme to develop future-ready professionals.

INTERNAL AUDITING AND ASSURANCE STANDARDS BOARD (IAASB)

⊙ Observance of June 2022 as Internal Auditing Month

I am pleased to inform you that the Institute is observing the month of June 2022 as "Internal Auditing Month" by organizing seminars/webinars on topics of professional relevance related to the Internal Audit function for the capacity building of the members. I request all the Regional Councils and Chapters of the Institute to organise online/ offline programs on the theme of Internal Auditing in their respective jurisdictions and make this initiative a grand success.

⊙ Technical Guide on Performance Audit

I am happy to inform that the IAASB shall be releasing the exposure draft of Technical Guide on Performance

Audit in the month of June 2022 on the Institute's website to invite comments/suggestions from the members and other stakeholders. Performance audit engagements are generally focused on evaluating & finding ways to improve the economy, efficiency and effectiveness of any organization or its specific areas or activities. By virtue of their professional expertise, Cost Accountants (CMAs) can assist the managements of business enterprises by providing them valuable insights as a result of performance audit, which can help them not only to operate in the fiercely competitive environment but to improve their profitability alongwith complying with all the requirements under various corporate and taxation laws.

MEMBERSHIP DEPARTMENT

During the month of May 2022, 202 new Associate memberships were granted and 51 Associate members were upgraded to Fellowship. I congratulate all the members and extend a warm and hearty welcome.

As mentioned in my earlier communiques, an advisory for CoP renewal for 2022-23 has been uploaded on the Institute's website and for ready reference the same has also been published in this issue of the Management Accountant.

I congratulate CMA (Dr.) V Murali, Chairman of the Members Facilities Committee under whose guidance the committee and membership department continued to process membership applications on a weekly basis and also process CoPs renewals on a daily basis.

Some of the useful links related to information and payment of membership related matters are appended below for ready reference -

Practising members may kindly take note of CEP requirements for CoP renewal which is available at: https://icmai.in/upload/Institute/CPD/CEP_Guidelines_01042021_31032024.pdf

Mandatory Capacity Building Training (MCBT) requirements for renewal and application of new CoP issued on and from 1st February, 2019 is available at - https://icmai.in/icmai/news/5435.php

For online payment of membership fees only:

- https://eicmai.in/MMS/Login.aspx?mode=EU (with login).
- https://eicmai.in/MMS/PublicPages/UserRegistration/Login-WP.aspx (without login).

For online renewal of CoP for FY 2022-2023: https://eicmai.in/MMS/Login.aspx?mode=EU

MEMBERS IN INDUSTRY & PLACEMENT COMMITTEE

I am highly pleased to share that after a very successful campus placement season in the month of April 2022 creating around 500 placement opportunities for the budding CMAs passed out in December 2021 term, 2nd phase of campus placement drives are going on in full swing during May - June 2022 with an endeavor to offer placements for all. Eminent Companies like Citco Shared Services (India) Pvt Ltd., Mazagon Dock Shipbuilders Limited, Conseroglobal Solutions India Private Limited, OLAM Information Services, ITC Hotels, UBS, ABB Global Industries and Services Private Limited, ITC Foods, Lennox India Technology Center, State Street Services India Pvt Ltd, ITC Ltd (Packaging & Printing Business) have started their 2nd round placement process and more than 50 CMAs are already placed during the 2nd phase.

I must congratulate CMA Debasish Mitra, Chairman, Members in Industry & Placement Committee and his team members for their relentless efforts to take campus placement initiatives to a greater height with an objective to create placement opportunities for all qualified CMAs.

PROFESSIONAL DEVELOPMENT COMMITTEE

I am delighted to share that the Institute entered into MOU with IGNOU which was showcased during 60th NCC 2022 in kind presence of the Dignitaries of the Institute and Vice Chancellor, IGNOU with the objectives of promoting Excellence in common area of interest, imparting knowledge and skills required to operate in the area of Academic, Research and Training.

I am pleased to inform you that the Professional Development Committee of the Institute has brought out the 4th Edition of the Member's Handbook. The Handbook was released during the CMA Foundation day celebration at 60th NCC 2022. In order to enhance the skill and build capacity of the members, the Institute has brought out this updated version of Handbook. This book will serve as a ready reference to all the CMA professionals in their day to day working and help in ease of doing businesses. There are many new avenues opened for cost accountants under various Statutes, information of which has been incorporated in this publication in order to highlight the

role being played by CMA Professionals in the growth of economy, industry and society.

PD Directorate submitted representations to various organizations for inclusion of cost accountants for providing professional services.

Please visit the PD Portal for Tenders/EOIs during the month of May 2022, where services of the Cost Accountants are required in Ranchi Municipal Corporation, Fertilisers And Chemicals Travancore Ltd, Rashtriya Raksha University, Commissionerate of State Tax, Odisha, Delhi Development Authority, Zilla Swasthya Samiti,(NHM) Nuapada, Jharkhand Mineral Area Development Authority, Nagar Parishad, Lohardaga (Jharkhand), Software Technology Parks of India, Commercial Taxes Department of Andhra Pradesh, Power Transmission Corporation of Uttarakhand Limited, Indian Institute of Management Calcutta, Defence Innovation Organisation, etc.,

Professional Development Committee in association with PHD Chamber of Commerce and Industry organised a programme on "How to handle Inspection, Search, Seizure and arrest under GST & Preparation and handling of Audit by GST Department".

Further, Professional Development Committee organised webinar on "AatmaNirbhar Bharat-India@75-Globalisation: Shaping a Sustainable Economy" on 6th May 2022.

REGIONAL COUNCIL & CHAPTERS COORDINATION COMMITTEE

The Regional Council & Chapters Coordination Committee under the Chairmanship of CMA (Dr.) K Ch A V S N Murthy organized a WEBINT on "Future Prospects of Pharma Industry in India - Opportunities for CMAs" on Wednesday, 18th of May, 2022.

I attended and addressed the participants, which was attended in large numbers, along with my Council colleague and Chairman of RC&CC Committee, CMA (Dr.) K Ch A V S N Murthy. The Guest speaker for the event was CMA VV Ravi Kumar, Executive Director & CFO, Laurus Labs Ltd. and the event was coordinated by CMA Vijay Kiran Agastya, Secretary SIRC. CMA VV Ravi Kumar shared his vast experience and knowledge by discussing the upcoming trends in Pharma industry, the new manufacturing models and also highlighted the importance and role of CMAs in the Pharma sector.

TAX RESEARCH DEPARTMENT

I along with CMA Chittaranjan Chattopadhyay, Chairman, Indirect Taxation Committee and TRD officials visited Shri D.P. Nagendra Kumar, Member (GST, CX, ST & Legal), CBIC and discussed about the contribution of CMAs in various avenues under GST on the 9th of May, 2022. A list of representations has also been discussed upon, wherein CMAs can contribute in GST but has not been included. A grand Physical Seminar has been conducted at Faridabad Chapter in association with the department. Shri K C Varshney, Joint Secretary, CBDT graced the occasion as Chief Guest. The Department has also completed the conduct of classes for GST course on GST for Colleges and Universities in Taradevi Harakhchand Kankaria Jain College and has successfully conducted the exam also. The exam for all the Taxation Courses has also been conducted on 8th of May, 2022. I wish good luck to the successful candidates. A representation has been submitted to the Government of NCT of Delhi, Department of Trade and Taxes for inclusion of Cost Accountants for providing various professional services in GST. All the Taxation courses, (i) Certificate Course on GST, (ii) (i) Advanced Certificate Course on GST, (iii) Advanced Certificate Course on GST Audit and Assessment Procedure, (iv) Certificate Course on TDS (v) Certificate Course on Filing of Returns, (vi) Advanced Course on Income Tax Assessment and Appeals and (vii) Certificate Course on International Trade are being conducted seamlessly. A trend has been created by the department started the weekly quiz for the members and it has received huge participation. The 111th & 112th Tax Bulletin has been released. Taxation Portal is being updated time to time with latest amendments and changes in Direct and Indirect Tax.

INSOLVENCY PROFESSIONAL AGENCY (IPA) OF THE INSTITUTE

Insolvency Professional Agency of Institute of Cost Accountants of India, in its endeavour to promote profession development and sharpen the skills of the professionals have constantly been conducting various professional & orientation programs across country and publishing various publications and books for the benefit of stakeholders at large. Towards that, IPA ICAI has undertaken several initiatives, as enumerated below, during the month of May 2022.

IPA ICAI had conducted **Pre- Registration Education**

Course (PREC) from 5th May to 11th May 2022, jointly with IIIPICAI and ICSIIP for enrolled Professional Members before their registration with IBBI as Insolvency Professionals.

A three days Master Class on **Personal Guarantors to Corporate Debtors** was conducted by our eminent faculties on 06th – 08th May 2022, wherein the provisions relating to personal guarantors, provided under Part III of the Insolvency and Bankruptcy Code, 2016 ("IBC"), were discussed with professional member participants at length. The program was well appreciated by the participants who were gained immensely with it. There were several take aways for the benefit of participants.

In order to sensitise the environment about professional misconduct, an online Workshop on **Professional Misconduct of Insolvency Professionals** was conducted on 13th May 2022, which received an overwhelming response from over 81 participants who got benefitted with the knowledge sharing.

A two days Online Learning Session on **Compliances to be made by Insolvency Professionals** to IPA and IBBI was organised on 22nd -23rd May 2022 which revealed various nuances and sensitized IPs about the reporting compliances and timelines under IBC, 2016.

In our perseverance to sensitize the IPs about their role and responsibilities under IBC, one day workshop on **Role of Insolvency Professional and Challenges faced by them** was conducted on 27th May 2022, wherein the responsibilities and the challenges of IPs during both these important processes under IBC were discussed with professional member participants at length. The interactive session and exchange of views on the subject, during the seminar, was the highlight of the program.

In its endeavour to promote profession, knowledge sharing and sensitisation of the environment, IPA ICAI published Au-Courant (Daily Newsletter), weekly IBC Dossier and monthly e- Journal which are hosted on its website.

ICMAI REGISTERED VALUERS ORGANISATION (RVO)

I am pleased to inform that ICMAI RVO has successfully organized Valuation Bootcamp, Mastering Shades of Valuation, Workshop on Valuation, Learning Session Emerging Business and Economic Environment, Master Class on Valuation, Learning Session Current Trends of the Indian Economy with an objective lens, Certificate Course in Valuation, Demystifying Valuation - Back to the Basics, Specialized Certificate Course in Valuation, 16th Online Mandatory COP Program and also organized a Seminar on the occasion of 5th Foundation Day ICMAI RVO.

I wish prosperity and happiness to members, students and their families and pray for the success in all of their endeavours.

Stay safe and healthy!

With warm regards,

CMA P. Raju Iyer

June 4, 2022

THE INSTITUTE OF COST ACCOUNTANTS OF INDIA
(Statutory body under an Act of Parliament)

Glimpses of 60th NATIONAL COST CONVENTION 2022

अध्यात्म् से आत्मनिर्भरता की ओर

Self-Reliance through Enlightenment

May 27 & 28, 2022, Lucknow, Uttar Pradesh

27th MAY 2022 - DAY 1 - INAUGURAL SESSION

Video recorded Message of Shri Yogi Adityanath
Hon'ble Chief Minister, Government of Uttar Pradesh

Presidential Address by CMA P. Raju Iyer, President ICAI

Welcome Address and Pleasantries by
CMA Vijender Sharma, Vice President ICAI

Theme Introduction by CMA (Dr) Balwinder Singh,
Former President & Council Member, ICAI and
Convenor, NCC 2022

Address by Chief Guest Shri DS Mishra, IAS, Chief
Secretary to the Government of Uttar Pradesh

Release of NCC Souvenir

Address by CMA Shailendra Paliwal, Chairman, NIRC ICAI and Co Chairman NCC 2022

Presentation of CMA ICON To CMA K. Sreekant

Presentation of CMA ICON To CMA Nageswara Rao

Presentation of CMA ICON To CMA S. Krishnan

Presentation of CMA ICON To CMA Yogesh Gupta

PLENARY SESSION - LEVERS OF SELF-RELIANT INDIA

Address by CMA Yogesh Gupta, IPS, Addl. Director General of Police, ICON of the Profession

Presentation on Self-Reliant India and Skill development by Shri B Ramakrishnan, Chief Executive Officer, TMI Group

Address by CMA Anjani Kumar Tiwari, Member, PNGRB on Oil & Gas infrastructure

Plenary Group

TECHNICAL SESSION 1 - SUSTAINABLE BUSINESSES THROUGH COST EXCELLENCE

CMA (Dr) Balwinder Singh, Council Member gave presentation on Integrated Reporting

CMA Asim Kumar Mukhopadhyay, Vice President, Tata Motors Ltd, talked on Cost Audit in the new technological perspective

Address by CMA B.B. Goyal, Former Addl. Chief Advisor (Cost), Ministry of Finance, Govt. of India

Group Photo of Technical Session 1

TECHNICAL SESSION 2 - SELF-RELIANT INDIA AND EMERGING TRENDS FOR PROFESSIONALS

Address by the Guest of Honour Shri Suresh Kumar Khanna, Hon'ble Minister for Finance and Parliamentary Affairs, Government of Uttar Pradesh

Professional Development MoU signed between The Institute of Cost Accountants of India and Indira Gandhi National Open University

CMA Rohit Kumar Chief Financial Officer Apollomedics Super Speciality Hospital, gave a presentation on Data Management: Importance for Professionals

Leadership: Sharing the Vision and Post COVID Recovery (CFO Forum) on 27th May 2022

Group Photo of Technical Session 2

28th MAY 2022 - DAY 2 - TECHNICAL SESSION 3 - FOUNDATION DAY CELEBRATIONS

Welcome address by CMA H Padmanabhan, Council Member ICAI

Address by Chief Guest Shri Brajesh Pathak
Deputy Chief Minister, Government of Uttar Pradesh

Release of Member's Hand Book

CAT Skill Development MOU

ICAI World Trade Center Shamshabad & Visakhapatnam MOU

CMA One BOB Card Release

Group photo CCMs

TECHNICAL SESSION 4 - SOCIAL CARE – NATION CARE

CMA (Dr) Balu Kenchappa, Regional Director Reserve Bank of India discussed on Preserving the Wealth of the nation

Shri Manoj Misra, Vice-President (Regulatory) Bharti Airtel Ltd, discussed on Engine of India's Digital Acceleration

CMA Anand P Thakur, Deputy General Manager, HAL talked on Aerospace: Role in Self Reliant India

Group photo of Technical Session 4

VALEDICTORY SESSION

Valedictory session in progress

Address by CMA P. Raju Iyer, President ICAI Chief Patron NCC 2022

Address by CMA Vijender Sharma, Vice President ICAI and Chairman, NCC 2022

Address by CMA H Padmanabhan, Council Member ICAI

Address by Dr Jai Deo Sharma
Chief Guest of the Programme,
Chairman & Independent Director, IPA of ICMAI

CAT RoCC

Vote of Thanks by CMA Kaushik Banerjee, Secretary ICAI

Group Volunteers of NCC 2022

BOOK RELEASE - AIDE MEMOIRE ON INFRASTRUCTURE FINANCING

CULTURAL PROGRAMME

3 - Day Seminar on
"Cost Excellence- A Sustainable Business Strategy"

Date: 13th to 15th May, 2022

Venue: IMMT Auditorium, Acharya Vihar, RRL Campus, Bhubaneswar

Organised by

The Institute of Cost Accountants of India – Committee on Cost Management for Public and Government Services in association with Bhubaneswar Chapter

3 - Day Seminar on "**Cost Excellence - A Sustainable Business Strategy" has been successfully organized by the** Institute of Cost Accountants of India – Committee on Cost Management for Public and Government Services in association with Bhubaneswar Chapter during the period from **13th to 15th May, 2022 at IMMT Auditorium, Sachivalaya Marg, RRL Campus, Acharya Vihar, Bhubaneswar-13, Odisha**

Day-1 (13.05.2022)

His Excellency **Prof. Ganeshi Lal** , Hon'ble Governor of Odisha inaugurated and graced the 3-day Seminar as **"Chief Guest" and CA. Sridhar Patra,** Chairman-Cum-Managing Director, NALCO Ltd. graced as **"Guest of Honour"** in the presence of **CMA P Raju Iyer**, President, ICAI, **CMA H Padmanabhan**, Council Member and Chairman, Certified Accounting Technician (CAT), International Affairs and Public Relation Committee and AAT Board, ICAI, **CMA Niranjan Mishra**, Council Member and Chairman, Committee on Cost Management for Public and Government Services, ICAI, **CMA Nishant Kumar Singh**, Chairman, ICAI-EIRC and **CMA Himoj Mishra**, Chairman, ICAI-Bhubaneswar Chapter.

To commemorate the 3-Day Seminar, a Souvenir and bimonthly digest of the Committee on Cost Management for Public and Government Services, ICAI **"The Xtramiles"** released in the hands of His Excellency Hon'ble Governor of Odisha.

Technical Session-I - "Cost Excellence-Power Generation":

CMA Neeraj D Joshi, Council Member & Chairman Management Accounting Committee, ICAI delivered Welcome & Key note address, **Er. Amresh Kumar**, Managing Director, OHPC Ltd., Bhubaneswar graced as **"Special Guest"** and **CMA D C Bajaj**, Former President, ICAI Chaired the technical session. **CMA M K Mittal** Former Director (Finance), NHPC Ltd., New Delhi, **CMA Santosh Kumar Sahu** Director, REC Ltd., IPMT, Hyderabad delivered various key issues with respect to cost excellence in power generation. **CMA Saktidhar Singh,** Chairman, PD Committee and Past Chairman, ICAI-Bhubaneswar Chapter extended formal vote of thanks.

A cultural fest was organized in the evening including Sand Art, Magic show and Odishi Dance performed by eminent Artists of Odisha for entertainment of the Participants in the evening.

Day-2 (14.05.2022)

Day 2 of the 3- Day Seminar starts with an inspirational and motivational session. **Rajyogini Brahma Kumari Sister Usha,** Senior Rajyoga Teacher, Mount Abu, Rajasthan, **Rajyogini Brahma Kumari Sister Leena,** Director, Brahma Kumaris , Bhubaneswar Zone shared their thoughts on **Let's know our LIFE BETTER. CMA Uttam Kumar Nayak, Vice -Chairman**, ICAI-EIRC delivered welcome address and **CMA Saktidhar Singh ,** Chairman PD Committee and Past Chairman of the Chapter extended formal vote of thanks.

Dr. Surjya Narayana Patro, Hon'ble Speaker, Odisha Legislative Assembly inaugurated and graced the Day 2 as **Chief Guest** in the presence of **CMA P Raju Iyer**, President, ICAI, **CA. Mukesh Singh Kushwah**, Council Member (Govt. Nominee), ICAI, **CMA Niranjan Mishra**, Council Member,

Chairman, Committee on Cost Management for Public and Government Services, ICAI, **CMA Bibhuti Bhusan Nayak**, Treasurer, ICAI-EIRC and **CMA Himoj Mishra**, Chairman, ICAI-Bhubaneswar Chapter.

CFO's Meet: CMA Chittaranjan Chattopadhyay, Council Member and Chairman, Indirect Taxation Committee and Banking, Financial Services & Insurance Board, ICAI delivered the welcome and keynote address, **CMA Arup Sankar Bagchi,** Sr. Director (Membership), ICAI moderated the meet. **CMA Pradeep Kumar Mohapatra**, Chief Finance Officer, Indradhanush Gas Grid Ltd., Guwahati, **CMA Ramesh Kumar Dash**, Director (Finance), GRSE Ltd., Kolkata, **CMA Subash Chandra Das**, Director(Finance), Brahmaputra Velley Fertilizer Corporation Ltd., Guwahati addressed on Industry Perspective, **CMA Arunabha Saha,** Practicing Cost Accountant, Mumbai also delivered on cost excellence in Thermal power generation. **CMA Mukesh Chaubey,** Managing Committee Member and Immediate Past Chairman, ICAI-Bhubaneswar Chapter extended formal vote of thanks.

Technical Session-II: Cost Excellence: Mines (Coal & Other): Session Chaired by **CMA (Dr.) D V Joshi**, Former President, ICAI **, CMA Rakesh Bhalla,** Council Member and Chairman, Direct Taxation Committee, ICAI welcomed and delivered his key note address , **Dr. Ashok Kumar Sahu**, Chief Scientist & Head, Mineral Processing Department, Strategy Planning, Business Development, CSIR- Institute of Minerals & Materials Technology, Bhubaneswar and **CMA R P Shukla**, Former Director (Finance), Western Coalfields Ltd., Nagpur delivered on cost excellence in Mining industries highlighting the strategic issues and challenges, as **"Resource Person". CMA Saktidhar Singh,** Chairman, PD Committee and Past Chairman, ICAI-Bhubaneswar Chapter extended formal vote of thanks.

Technical Session-III: Cost Excellence (Oil and Natural Gas): Session Chaired by **Er. Ajit Kumar Thakur** CEO, Indradhanush Gas Grid Ltd., Guwahati **, CMA V. Murali**, Council Member and Chairman, Members' Facilities Committee, ICAI delivered welcome and keynote address , **Er. Sushil Chandra Mannagudda**, Former GGM (Corporate Strategy), MRPL, Mangalore, CMA **Pradeep Kumar Mohapatra**, Chief Finance Officer, Indradhanush Gas Grid Ltd., Guwahati and **CMA Er. Tuhin Kanti Bhattacharjee,** Chief Manager, Gas Business Development Cell, Oil India Limited, Dibrugarh delivered details on cost excellence on Oil and Natural Gas as **"Resource Person". CMA Ajay Kumar Samal**, Managing Committee Member and Chairman, IT Committee, ICAI-Bhubaneswar Chapter extended formal vote of thanks.

Technical Session-IV : Cost Excellence: Metal (Steel & Aluminum): Session was Chaired by **CMA Jyoti Prakash**, CFO, Creative Port Development Private Ltd., Bhubaneswar and graced by **Er. Bijay Kumar Das,** Director (Production), NALCO Ltd., Bhubaneswar as **"Special Guest"**. **CMA Papa Rao Sunkara,** Council Member and Chairman, Career Counseling Committee, ICAI delivered the welcome & keynote address. **CMA Braja Kishore Dash**, Group General Manager (Finance), NALCO Ltd., Bhubaneswar and **CMA Chasetti Leela Srinivas**, Dy. General Manager (F&A), Rashtriya Ispat Nigam Limited, Visakhapatnam delivered details on cost excellence in metal (Steel & Aluminum). **CMA Surya Narayan Tripathy,** Secretary, ICAI-Bhubaneswar Chapter extended formal vote of the thanks.

Second day of the Seminar was ended with Musical night.

Day-3 (15.05.2022)

Day-3 of the seminar started with an inspirational session on **Let's PAUSE and PROCEED. Prabhuji Ramesh Juneja,** Motivational Speaker, ISKON, Kolkata mesmerized the participants with his golden words**. CMA Saktidhar Singh,** Chairman, PD Committee and Past Chairman ICAI-Bhubaneswar Chapter delivered the keynote address and **CMA Surya Narayan Tripathy ,** Secretary, ICAI-Bhubaneswar Chapter extended formal vote of thanks .

Shri Bishweswar Tudu, Hon'ble Minister of State for Tribal Affairs and Jal Shakti, Government of India, New Delhi inaugurated the day-3 of the Seminar as **"Chief Guest"** in the presence of **CMA Pradip Kumar Das** Chairman & Managing Director , IREDA , New Delhi, **Shri Sudipta Kumar Ray ,** Independent Director , Indian Oil Corporation Ltd. **CMA Niranjan Mishra,** Council Member & Chairman Committee on Cost Management for Public & Government Services, ICAI delivered welcome address and **CMA Rakesh Bhalla,** Council Member & Chairman , Direct Taxation Committee, ICAI delivered the keynote address , **CMA Uttam Kumar Nayak,** Regional Council Member & Vice Chairman , ICAI-EIRC also addressed on the Occasion. **CMA Himoj Mishra,** Chairman , ICAI-Bhubaneswar Chapter extended formal vote of thanks .

Technical Session – V : Cost Excellence – Power Transmission, Distribution and Power Financing: Session was Chaired by **CMA Pradip Kumar Das,** CMD, IREDA , New Delhi. **CMA Debasish Mitra,** Council Member and Chairman, Members in Industry & Placement Committee, ICAI delivered the welcome and keynote address , **CMA Bibhuti Bhusan Nayak,** Regional Council Member and Treasurer , ICAI-EIRC and **Shri Chintan Shah,** Director (Technical Services), IREDA also addressed. **CMA Kshirod Chandra Nanda ,** G.M (Regulatory Affairs and Strategy), TPWODL, Sambalpur and **CA CS Yatender Atreja**, Expert-Power Financing, New Delhi delivered details on the topic as **"Resource Person"**

Technical Session-VI : Cost Excellence-Government Services (Transportation, Health & Sanitation and Education): Session was **Chaired** by **Shri Rabi Shankar Mitra, IRAS**, Principal Financial Advisor & Chief Accounts Officer East Coast Railway, Bhubaneswar , **CMA Mukesh Chaubey,** Past Chairman and MC Member**,** ICAI-Bhubaneswar Chapter delivered the welcome and keynote address **, CMA Mrityunjay Acharjee** , General Manager (Finance), Numaligarh Refinery Ltd., Guwahati, **CMA D M Balachander**, Consultant, Education Sector, Chennai and **CMA Shiba Prasad Padhi** , Practicing Cost Accountant, Bhubaneswar delivered as **"Resource Person". CMA Surya Narayan Tripathy,** Secretary, ICAI-Bhubaneswar Chapter extended formal vote of thanks.

Valedictory Session : Mrs. Sulochana Das, Hon'ble Mayor, Bhubaneswar Municipal Corporation, Bhubaneswar graced and addressed as **"Chief Guest"** in the valedictory Session. She also announced the Lucky Winners name during Lucky Draw.

CMA Kaushik Banerjee, Secretary, ICAI, **CMA Himoj Mishra**, Chairman, ICAI-Bhubaneswar Chapter, **CMA Surya Narayan Tripathy**, Secretary ICAI-Bhubaneswar Chapter , **CMA Bibhuti Bhusan Nayak**, Treasurer, ICAI-EIRC extended vote of thanks for grand success of the 3- Day Seminar. **CMA Niranjan Mishra**, Council Member and Chairman, Committee on Cost Management for Public and Government Services, ICAI delivered Valedictory address with thanks and gratitude to all the organizing team, participants, Guests, Resource Persons, Committee Members of 3-Day Seminar, Staffs, Volunteers, Sponsors, Press & Electronic Medias and others who have extended their support and cooperation to make the event a gala success at temple city once again. He also acknowledges contribution of **CMA Shiba Prasad Padhi** and **CMA Satya Sundar Mahasuar**, Co-Chairman of Technical Committee for their timely coordination to organize the technical sessions in most effective manner.

For highlighting the said 3- Day Seminar, a press Meet also has organized on 12.05.2022 at CMA Bhawan, Nayapalli, Bhubaneswar where more than 30 (Thirty) numbers representative of print and electronic media attended and given wide converge on all the days of the seminar as well as press meet.

More than **500 delegates and invitees** actively participated in the 3-Day Seminar from PAN India. With collective efforts and team work the said seminar was a grand success.

Seminar on Management Accounting & Summit on Corporate Laws

6th May & 7th May 2022

Yashwantrao Chavan Centre, Nariman Point, Mumbai

Jointly organized by the Management Accounting Committee and the Corporate Laws Committee

The Institute of Cost Accountants of India has decided to mark the occasion of International Management Accounting Day on the 6th of May by holding Seminar on Management Accounting every year. This has been the first year of this event by the Institute and the seminar involved deliberations on various emerging techniques of Management Accounting keeping Sustainable Development at its core. The program was of 2-days duration; The first day was on Management Accounting followed by the Summit on Corporate Laws the next day, 6th & 7th May, 2022.

The 2-days program was successfully conducted under the able guidance of Chairman CMA Neeraj D. Joshi. The Inauguration program started on the 6th of May with the welcome address of CMA (Dr.) Ashish Thatte, Chairman of Corporate Laws Committee. The theme of the program in detail was deliberated by the Chairman of the Management Accounting Committee, CMA Neeraj D. Joshi. Shri Ashish Kumar Chauhan, MD & CEO of Bombay Stock Exchange and Shri Lalit Gandhi, President of MACCIA addressed the audience as Guests of Honour. The program was also graced by the Chief Guest, Shri Prithviraj Chavan former Chief Minister of Maharashtra, former Union Minister, GoI. Other dignitaries who graced the occasion and addressed the erudite audience were, President CMA P. Raju Iyer and Vice President Vijender Sharma among other Council Members, former Presidents, Regional Council Members of the Institute.

The first technical session was on 'Management Accounting Techniques' and was chaired by CMA D C Bajaj former President of the Institute. The guest speakers for this session were CMA (Dr.) Girish Jakhotiya, Chief Consultant with Jakhotiya & Associates, and CMA Milind Date, Director (Learning & Development) at International Skills Development Corporation. Concluding remarks and vote of thanks for this session was presented by CMA Biswarup Basu, Immediate Past President of the Institute.

The second technical session was on 'Environment Social Governance (ESG)' and it was chaired by CMA V. V. Deodhar, former President of the Institute. The learned speakers for this session were CS Meghna Shah, partner at MSDS & Associates, CMA Chandrashekhar Chincholkar, Strategic Advisor with KPIT Technologies Ltd., and Ms. Madhuri Lele, proprietor of Services N Solutions. The rapporting for the session was done by CS Makarand Lele Government nominee and the concluding remarks of the session was presented by CMA (Dr.) V. Murali Council Member of the Institute.

The second day of the program was on the Summit of Corporate Laws and the first technical session on the 2nd day was on 'New Horizons for Management Accounting'. CMA Amit Apte, former President of the Institute chaired the session. The first speaker for this technical session was Dr. Rahee Walambe. She talked on the topic 'AI as Tool for Management Accounting'. The session on 'Natural Resource Accounting' was presented by Shri Sudipta N. Biswas, Sr. Administrative officer at Govt. Accounting Standards Advisory Board (GASAB). The rapporting for this session was done by CMA (Dr.) K Ch A V S N Murthy and concluding remarks of the session was presented by CMA Debasish Mitra Council Members of the Institute.

The guest speaker for the fourth technical session, CS

Sachin Mishra, Head (Legal) and Company Secretary of Tata Consulting Engineers Ltd. spoke on 'CSR & Impact Assessment'. The topic on 'Social Audit' was dealt by CMA A Sekar, a practicing company secretary. The rapporting for this session was done by CMA Chittaranjan Chattopadhyay and concluding remarks of the session was presented by CMA Papa Rao Sunkara, Council Members of the Institute.

The valedictory session of this 2-day program was graced by Guest of Honour, CMA Asim Kumar Mukhopadhyay, Vice President & Head (Business Finance), TATA motors Ltd., CMA P. Raju Iyer, President, CMA H. Padmanabhan, Central Council Member, CMA Neeraj D. Joshi, Chairman of the Seminar and Management Accounting Committee, CMA (Dr.) Ashish P. Thattee, Chairman of Corporate Laws Committee and CMA Vinayak Kulkarni, Regional Council Member of the Institute. The program was a great success and attended by a huge number of Members and Professionals of various Industries and Students.

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CMA Convention on

'Agri Value Chain Management'

at The Capitol Hotel, Bengaluru on 21st May, 2022

Organised by

Task Force on Agri Cost Management

in association with

Bengaluru, Mysore & Hosur Chapters of Cost Accountants

A whole day CMA Convention on 'Agri Value Chain Management' was organised by the Task Force on Agri Cost Management at Bangalore on 21st May 2022 in association with Bangalore, Mysore and Hosur Chapters.

At the inception the dignitaries were welcomed by CMA Raveendranath Kaushik, Member of the Task Force. In his inaugural speech Chairman of the Task Force, CMA (Dr.) K.Ch.A.V.S.N. Murthy brought forth the fact that Farmer is a 24/7 Entrepreneur. He emphasised the core theme of 'Educate – Empower – Enrich – Enhance' being followed by the Task Force on Agri Cost Management. Past Presidents CMA Balwinder Singh and CMA Biswarup Basu commended the efforts of CMAs in relation to Agriculture. CMA Raja Gopalan, Chairman, SIRC, pinpointed the lead role CMAs can play in Agri Sector. President CMA Raju Iyer laid the road map for the Roles and Responsibilities of the CMAs towards 'Augmentation of Farmers' Income' in tune with the vision of Hon'ble Prime Minister.

Key note address was delivered by Shri Hanumanagouda Belagurki, Chairman, Karnataka Agricultural Price Commission. He traced the growth of Indian Agriculture from a deficient stage immediately after the independence to the present surplus stage. The key challenge at present, therefore, is marketing the surplus farm produce at a fair price. He observed that Cost Accountants can play a pivotal role by conducting the crop-wise cost benefit analysis and guiding the farmers towards a sustainable Crop Plan. Shri Hanumanagouda gave a clarion call to the CMA fraternity for intensive efforts to spread awareness about Agri Cost Management amongst the agri stakeholders.

During the inaugural session CMA (Dr) Sreehari Chava from the Western Region and CMA Santosh Sharma from the eastern region were honoured with 'Scroll of Felicitation' for their contribution towards Agri Cost Management. Research Monograph titled 'Agri Cost Clinic' (Integrated English and Hindi version) and 'CMA Agri Bulletin (Vol.2, No.1)' were released. Vote of thanks for the session was proposed CMA Satish, Chairman, Bangalore Chapter.

Presentations were made in technical sessions by Prof. Dr. S. K Yadav, Director, School of Agriculture, IGNOU, New Delhi on "Ways and Means of Reducing Cost of Cultivation"; by Prof. Chandrakanth, Agro Economist, Rtd. Director, ISEC on "Costing & Pricing of Agriculture Commodities in Value Management"; by Dr. Gali Basavaraj, Deputy Director, Centre of Excellence in Farmer Producer Organisations, College of Horticulture, University of Horticultural Sciences Campus, GKV; on "Policy Advocacy in Promotion of FPOs in Karnataka"; by CMA (Dr.) Paritosh Basu, Senior Professor & Chairperson of MBA (Law) Program, NMIMS University School of Business Management, Mumbai on "Blockchain Platform for Agriculture"; by Dr. Suseelendra Desai, Dean, NMIMS University School of Agricultural Sciences & Technology, Shripur on "Agri Value Chain Management"; by Dr. Ashokraj Bapugowda Patil, Officer on Special Duty, Minister of Agriculture, Govt. of Karnataka on "Agri Startup the way Forward", by Dr. B.N.S. Murthy, Director, ICAR- Indian Institute of Horticultural Research on "Horticulture and Value Addition for Increasing the Income of Farmers".

The presentations threw up several dimension relating to Agri Value Management which include: CMA is the only profession trying to understand cost of Agriculture; How can farmers know the cost

of cultivation?; Economic Costing vs Accounting Costing; Under valuation of agri resources & services; Synchronised FPO Policy; Block Chain & Performance Management; 7Ts for Agri Block Chain; Sustainable Agri Value Chain for Indian Farmers; Farmers are at loss because they are not doing the Accounting; Start up India, Stand up India; Start-up Innovations; Go for what the Market Demands; Accredited Nurseries; and so on.

The technical sessions were chaired and moderated by CMA Neeraj Joshi, CCM; CMA Zitendra Rao, Member, Task Force on ACM and CMA Chittaranjan Chattopadhyay, CCM. Vote of thanks for the technical sessions was proposed by CMA Purushottam, Chairman, Mysore Chapter; CMA Rajashekhar, Chairman, Hosur Chapter; and CMA Ashok Kumar, Treasurer Mysore Chapter.

During the valediction CA Padmanabhan highlighted the fact that 'Creating is easier - Sustaining is difficult' and advised the CMAs to move forward with vigour and rigour The valedictory session was also addressed by CMA Aswin Dalwadi, CCM. The web portal of the Task Force was activated at the hands President CMA Raju Iyer. The proceedings were summed up by CMA (Dr) Sreehari Chava, Convenor of the Task Force. A special feature of the valediction was signing of MOU with Jain University for academic and research collaboration. At the end, a formal vote of thanks was proposed by CMA (Dr.) D.P.Nandy, Secretary of the Task Force.

The convention was attended by over 300 enthusiastic participants comprising CMA Members, CMA Students, Agri Academicians and Agri Research Scholars.

Convocation at

Dhanraj Baid Jain College [Autonomous], Chennai

on 17th May, 2022

CMA P Raju Iyer, President, The Institute of Cost Accountants of India was invited as Chief Guest at the Graduation Day organised by Dhanraj Baid Jain College [Autonomous], Chennai on 17-05-2022 at the College Auditorium. CMA P Raju Iyer was welcomed by Dr C. Murugesan, Principal[i/c], Dr. M. Sakthivel Murugan, Professor i/c & Heads of the Departments and Faculty Members. President felicitated the Rank Holders and distributed the Degree to 400 UG / PG programmes.

Webinar on

"Ethics and Corporate Governance: Emerging Trends in India"

3rd May, 2022 from 4 to 6 pm

Organised by the Banking, Financial Services and Insurance Board (BFSIB)

Business ethics is the application of general ethical principles to business dilemmas and encompasses a broader range of issues and concerns than laws do, as everything that is legal is not ethical. Ethics involves learning what is right or wrong, and then doing the right thing -- but "the right thing" is nowhere defined in a straightforward way .Corporate governance is concerned with the ownership, control and accountability of companies, and how the corporate pursuit of economic objectives relates to a number of wider ethical and societal considerations. It is the application of best management practices, compliance of law in true letter and spirit, adherence to ethical standards and discharge of social responsibility for sustainable development of all stakeholders. Good governance is, ultimately, the sine qua non for continued growth and prosperity. No system of corporate governance can be totally proof against fraud or incompetence. The test is how far such aberrations can be discouraged and how quickly they can be brought to light.

Keeping the considerations of behavior based on values and the concerted effort to deal with corporate ethics, the Banking, Financial Services and Insurance Board (BFSIB), under the Chairmanship of CMA Chittaranjan Chattopadhyay had organized a webinar on the topic of "Ethics and Corporate Governance: Emerging Trends in India"on 3rd May, 2022 from 4 to 6 pm. The Speaker of the webinar was Shri Laxmi Narayan Rath, Chief Vigilance Officer (CVO), Bank of India with an additional charge of CVO, Bank of Maharashtra. The webinar was also graced by Shri Syamal Ghosh Ray, Former General Manager ,Union Bank of India (eAndhra Bank) and presently Consultant to the BFSI Board.

The deliberation was presented by the Speaker with a Powerpoint Presentation. He stated that Ethics normally translates to business ethics which is implemented or put to use in the corporate culture. Ethics originated from the Greek word 'Ethos' meaning custom, conduct or habit. Business ethics, in simple language, refers to right or wrong behaviour in business. Ethics is not something which can be visualised or is concretely perceived. It is a set of moral principles that govern a person's behaviour. Ethics is the sum of various good virtues and qualities which impacts the decision-making capacity of an individual. There may be multiple choices in any given scenario and rationality implores taking the best course of action. This virtue is embedded in the minds of employees, whether be it an individual or as a collective organisational behaviour. Lack of such creates destruction of personal as well as national wealth. Ethics provides a systematic and rational way to look through dilemmas and to determine the best course of action in the face of conflicting choices. Ethics is a sum of a result not only from nature (i.e. family, environment), but nurture as well (institutions, peer group etc.)

Ethical failures, either at Individual or organisational level is triggered by one or more of the following elements, whether it be greed, convenience, ignorance, pressure or fear. As an adverse consequence towards ethical failures, the organisation incurs costs which include fines and penalties, increased administrative and audit regulations, legal and investigative costs, remedial education to personnel, corrective actions against the organization which will give rise to a domino effect of increased Government oversight and regulations. These failures give rise to loss of reputation, employee cynicism and loss of morale which will in turn result in high employee turnover.

The discussion elaborated the topic of Corporate Governance, which as defined by the Speaker, etymologically would mean the process by which the corporates were run to achieve their objectives, therefore it should be as old as the corporates came to existence. However, the combined term of Corporate Governance connotes something more than its individual meanings. Over a period of time the structure of corporates has becoming a complex and multidimensional. The stakeholders' interest and priorities have become heterogeneous with various external and statutory obligations aimed to be fulfilled.

Corporate Governance has acquainted in India in early nineties after the Cadbury Committee report, a buzzword with The K. Birla Committee constituted by the SEBI in the year 2000. RBI Report of the advisory group on Corporate Governance in 2001, Report of The Naresh Chandra Committee 2002, SEBI Report on Corporate Governance 2003 (N R Narayan Murthy), Corporate Governance and Ethics Committee Report 2010, chaired by Mr. N R Narayan Murthy which was formed by the CII and NASSOCOM post Satyam saga and it continues to evolve further. He quoted from the Cadbury Report stating that the Corporate Governance is holding the balance between economic and social goals and between individual and common goals. The governance framework is there to encourage the efficient use of resources and equally to require accountability for the stewardship of those resources. The aim is to align as nearly as possible the interests of individuals, corporations, and society. The incentive to corporations is to achieve their corporate aims and to

attract investment. The incentive for nation states is to strengthen their economies and discourage fraud and mismanagement.

According to the Kumar Mangalam Birla Committee on Corporate Governance, the fundamental objective of the corporate governance is "the enhancement of shareholder's value keeping in view the interest of other stakeholders." The four pillars of Corporate Governance are Accountability, Fairness, Transparency and Independence. Corporate governance is about managers fulfilling a fiduciary responsibility to the owners of their companies, which is based on trust.

Corporate governance is the combination of processes or laws by which businesses are operated, regulated or controlled. The term encompasses the internal and external factors that affect the interest of a company's stakeholders, including promoters, shareholders, customers, suppliers, management, employees and public at large.

The RBI discussion paper on Governance in Commercial Banks defines Corporate governance as a set of relationship between a company's management, its board, its shareholders as well as other stakeholders which provides the structure through which objectives of a company are set, along with the means of attaining those objectives and monitoring the performance.

Quoting from the Cadbury Report, the speaker stressed that the Corporate Governance is holding the balance between economic and social goals and between individual and common goals. The governance framework is there to encourage the efficient use of resources and equally to require accountability for the stewardship of those resources. The aim is to align as nearly as possible the interests of individuals, corporations, and society. The incentive to corporations is to achieve their corporate aims and to attract investment. The incentive for States is to strengthen their economies and discourage fraud and mismanagement.

An effective framework which is supposed to focus on the quality and consistency and proper division of responsibilities among the different authorities, identification and protection of shareholders' rights with increased disclosures and transparency while ensuring mechanism to avoid conflict of interest, ensuring guidance on responsibility of board, defining various functions and roles of directors, creation of special committees, formation of independent risk and audit functions etc.

The erudite speaker pointed out about the responsibilities of the board, basically the organizational culture and values. A fundamental component of good governance is a culture of reinforcing appropriate norms for responsible and ethical behavior which includes risk culture. Indicators of risk culture can be grouped as Tone at the top, Accountability, Effective Communication and challenge with proper incentive structure.

A model code of conduct for employees making clear that employees are expected to conduct themselves ethically, perform their job with skill, exercise due care and diligence in addition to complying with laws, regulations and as well as internal policies of the organization was also discussed.

Business ethics therefore relates to what is morally and ethically correct than simply being technically correct. Business ethics cannot be uniform for all corporates, it may vary from Company to Company depending upon their discretion, priority and nature of activity. Honesty, Integrity, Commitment, Trust, Loyalty, Fairness, transparency, accountability, Concern for others, concern for society, law abiding, leadership, image and reputation, commitment to excellence etc. are the common facets in case of most of the organizations.

It also encompasses by instilling and encouraging employee virtues, ethical behavior and power of voice "Speak up", Mirror review, based on online feedback from employees and others, proactive engagement with public during disaster, compassionate compensation in emergencies, eradicating any discrimination on basis of gender, caste, race etc., ensuring data privacy, moral entrepreneurship, Strengthening anti-corruption / anti bribery / anti money laundering laws, robust internal audits and Increasing disclosures,strengthening competition laws, increasing shareholder activism and investor protection,Voluntary disclosures of conflicts,Commitments to the community. Business Responsibility and Social Responsibility Reporting (SEBI) are the latest trends in reduction of risks by making the participants in the governance process as effectively accountable as possible.

The webinar was concluded with the Speaker addressing a number of questions regarding business ethics and corporate culture.

The Institute of Cost Accountants of India

[Statutory Body under an Act of Parliament]

&

Alagappa University

[Category I University – UGC & State University – Tamil Nadu]

Memorandum of Understanding [MoU] &
Two days International Conference on
Contemporary Trends and Challenges in FINTECH Services in VUCA World.

Hosted by

Department of Corporate Secretaryship, Alagappa University

[Karaikudi, Tamil Nadu, 5th & 6th May 2022]

PRESS RELEASE

Alagappa University [Category I University & State University – Tamil Nādu] has entered into **Memorandum of Understanding [MoU]** with The Institute of Cost Accountants of India on **5th May 2022** during the **Two Days International Conference on Contemporary Trends and Challenges in FINTECH Services in VUCA World** held at Karaikudi, Tamil Nādu on 5th & 6th May 2022. **It is 8th MoU signed by the Institute** in Tamil Nādu for Industry – Academic Research Activities. The MoU was signed by **CMA P Raju Iyer, President** & **Dr. C. Sekar, Registrar [i/c]**, Alagappa University in the august presence of **Dr. S. Rajamohan**, Dean, Faculty of Management Studies, **Dr. C. Vethirajan**, Professor & Head, Department of Corporate Secretaryship, **CMA K Rajagopal, Chairman – SIRC** of the Institute, **Dr. Sivesan Sivanandamoorthy**, University of Jaffna, Srilanka, **Dr. S. Santhosh Baboo**, Principal, DDGD Vaishnav College, **CMA R K Bapulal**, Chairman, **CMA S Kumararajan**, Vice Chairman, Madurai Chapter of Cost Accountants **CMA D Kalaiselvan**, Chairman, Dindigul Chapter of Cost Accountants & **CMA Rakesh Shankar Ravisankar**, Member – IAASB of the Institute. CMA P Raju Iyer & Dr. S. Santhosh Baboo jointly inaugurated the Conference and delivered their Inaugural and Special address.

MoU Exchange by CMA P Raju Iyer & Dr. C. Sekar

CMA P Raju Iyer & Dignitaries in Inaugural Session

Felicitation to the President – CMA P Raju Iyer by the officials of Alagappa University

The conference hosted the following Plenary Sessions deliberated were in depth into the subject domain.

Plenary Sessions	Speaker
Impact of FINTECH in Tourism and Hospitality Sector	**CMA S Kumararajan,** Vice Chairman, Madurai Chapter of Cost Accountants
FINTECH in wealth Management	**Shri Ramgopal Suriyanarayanan,** Consultant, Bengaluru
FINTECH & Corporate Governance	**Dr. A. Tamilarasu,** Ambo University, Ethopia
Digital Finance & Digital Money	**CMA Chittaranjan Chattopadhyay,** Council Member – Chairman, BFSI Board & Indirect Taxation Committee
FINTECH – Emerging entrepreneurial Avenues	**CMA Vijay Kiran Agastya** Treasurer – SIRC of ICAI – CMA
FINTECH in Health & Hospitality Management	**Dr. A.S. Poornima,** Faculty of Management, SRIHER, Chennai
FINTECH in Education Sector	**Dr.M.Pitchaimani,** Principal, Srimad Andavan Arts and Science College
FINTECH – Opportunities for Cost Accountants	**Dr. A. Mayilmurugan,** HOD – Commerce, Madura's College, Madurai
FINTECH in Accounting & Auditing – Professional Approaches	**CMA U Suryaprakash,** Treasurer, Coimbatore Chapter of Cost Accountants.

50 Technical Papers were presented and the conference proceedings were released by the President – CMA Raju Iyer and was received by the dignitaries. **Dr. K. Murugan**, Former Vice Chancellor of Bharathiyar University, Coimbatore & Former Registrar, Tiruvalluvar University delivered the Valedictory Address. **CA Satish Viswanathan**, Founder of Munnetram – EdTech Platform for Rural Students delivered special address in virtual mode from USA.**500 participants** comprising of students, research scholars, industry representatives and professionals participated.

Signing of Memorandum of Understanding [MoU]

Between

The Institute of Cost Accountants of India & Birla Global University

held on 13th May, 2022 at Bhubaneswar

A STUDY ON THE AGRI STARTUPS IN INDIAN SCENARIO

Abstract

An attempt has been made in this article to understand the importance of Agri Tech startups in India helping the Indian agricultural sector at large. A total of ten Agri Tech companies have been taken into consideration for the study. The study aims towards understanding the purpose for setting up these companies and their funding patterns. A further endeavor has been made to understand how these companies are leveraging modern technology to increase the agricultural productivity in the country.

Dr. Arindam Banerjee
Assistant Professor
J.D. Birla Institute *(Affiliated to Jadavpur University)*
Kolkata
arindamresearch790@gmail.com

1. INTRODUCTION

Agriculture is one of the major sectors in India which is employing around half of the population of the country but its contribution to GDP accounts for approximately 20 per cent. This may be attributed to the inefficient agri value chain coupled with structural and operational challenges. The introduction of technology in agriculture which is popularly known as agri technology is driving the country to new agriculture revolution. The application of technology is helping to increase the farm product and services by improving the input- output process which is ultimately helping to improve the output, efficiency as well as the profitability of the agriculture sector. The increased application of artificial intelligence and data science in agriculture is bringing about disruption in the traditional agricultural processes and helping to modernize the entire process and system in agriculture. The penetration of technology in the agricultural processes is initiating an altered agri ecosystem which is in fact bringing more innovative opportunities in agricultural sector. A paradigm shift is observed in the agricultural sector today with the advent of the agri tech businesses taking off. The traditional agricultural model is replaced by more diversified, modern and robust model aiming to integrate cutting edge technologies with infusion of data analytics, artificial intelligence, machine learning, internet of things etc.

Entrepreneurs, business houses, investors, and Government are slowly realizing the space available in agri tech business opportunities and setting up agri tech businesses in India. Most of the agri tech startups are a boon to the farmers. The Government of India is serious about the improvement of the condition of the farmers and encouraging the utilization of technology in agriculture which will benefit the farmer community at large. The modern technology used by these startups can be used in real time crop management, pest management or soil and weather monitoring which can be of great help to the farmers. Climate change which results in long term changes in weather and temperature pattern can be properly monitored through utilization of artificial intelligence or data analytics which can help the farmers at large. These agri tech companies use artificial intelligence-based solutions to meet various operational and structural challenges, create marketing and food value chains, for easy access to agricultural services, for simplified logistic solutions, and thus helping to increase agricultural trade profitability.

2. INITIATIVE OF GOVERNMENT TO BOOST AGRI TECH STARTUPS

The Government of India is very much inclined to give a boost to the agri tech companies setting up businesses in India so that the farmers get the much-needed assistance through modern technology to increase the agricultural production and hence improve the agriculture value chain. The initiative of the Government is evident from the fact that in Budget

2022-23 the Finance Minister Smt. Nirmala Sitharaman announced a new scheme in partnership with the private companies to provide hi-tech and digital services to the farmers. The scheme basically emphasizes upon the public- private partnership to boost the agriculture value chain. The Government plans to launch a fund to finance the capital requirement in a blended form with the association of NABARD for the agri tech startups for agriculture and rural enterprises thus emphasizing the need for establishing 'digital agriculture'. The Government is also thinking in lines of having drones-based technologies in agriculture for proper crop assessment, digitalizing of land records as well as spraying of insecticides and nutrients. The budget reflects the mindset of the Government to digitalize the agriculture sector by popularizing the modern technologies which will help to increase farm productivity.

Climate change which results in long term changes in weather and temperature pattern can be properly monitored through utilization of artificial intelligence or data analytics which can help the farmers at large

3. AGRI TECH COMPANIES IN INDIA

3.1 Purpose of the agri tech companies

Ten agri tech startups in India have been taken into consideration for the present study. A thorough investigation is made to understand these startups, their purpose as well as the funding of these startups. The ten startups taken for the study are (1) Ninja Carts (2) Way Cool (3) Agrostar (4) Dehaat (5) Stell Apps (6) Bijak (7) Cropin Technology (8) EM3 Agriservices (9) Intello Labs and (10) Aibono.

Table 1 reflects the purpose of the establishment of these startups:

TABLE 1

Name of Agri startup	Establishment Year	Purpose
Ninja Carts	2015	fresh produce supply chain company and forms as a link between producer of food and retailers, restaurants and service producers.
Waycool	2015	It is an agri commerce company which is involved in food development and distribution. The company has adopted a tech enabled supply chain approach to help the farmers.
Agrostar	2013	It is a startup aiming to build an agri solution platform to provide end-to-end solutions to farmers.
Dehaat	2012	It provides a single platform to connect the farmers and buyers. It endeavors to provide an online market place for all agricultural products and services to the farmers.
Stell App	2011	This unique startup actually works towards digitization of dairy supply chain in relation to optimizing milk production and procurement.
Bijak	2019	This startup provides B2B marketplace for buyers and sellers in the area of agricultural commodities across agri value chain.
Cropin Technology	2010	It is a global agricultural ecosystem intelligence provider. It provides digital empowerment and aims to narrow the digital divide in agricultural operations.
EM3 Agriservices	2013	It aims at increasing the agricultural productivity by putting forward technology and mechanization for farming community on a pay -for -use basis.
Intello Labs	2016	It aims at providing full automation in supply chain management for fresh fruits, vegetables, nuts etc. It uses artificial intelligence and machinery learning for improving crop quality, assessment of food quality etc.
Aibono	2014	It aims at utilizing predictive analytics, comprehensive data instruments and process improvement to help farmers to improve their yields

Source: Compiled by Author from respective websites of the Startups

It can be observed from the above Table that the basic purpose of the agritech startups is to utilize the modern technology through artificial intelligence, data analytics and machine learning to help the farmers and also to bridge the gap between the farmers and retailers. Its main purpose is to increase the agricultural yields and strengthen the agricultural value chain.

3.2 Funding Pattern of the Agri Startups

In this section the funding pattern of the ten agri tech startups has been analyzed.

The Table 2 below reflects the funding pattern of the Agri tech startups.

TABLE 2

FUNDING PATTERN OF 10 AGRI TECH COMPANIES

Name of Agri startups	Fund Raised	Funding Rounds	No. of Investor	Some Prominent Investors
Ninja Carts	358 million dollars	14	20	Flipkart, Qualcomm Ventures, Walmart, Accel, Neoplux etc
Waycool	222 million dollars	19	22	GAWA Capital, Light Box, Light rock, FMO, Redwood equity etc.
Agrostar	112 million dollars	7	11	Hero Motorcop Limited,Aavishkaar Venture Capital,Accel,CDC Group etc
Dehaat	194 million dollars	7	13	Prosus Ventures, FMO, RTP Global, Sofina
Stell App	37 million dollars	10	14	IDH,Celesta Capital,Omnivore,Nutreco
Bijak	34 million dollars	3	12	Surge, Omidyar Network India, Better Capital, AL Trust etc.
Cropin Technology	33 million dollars	10	12	Pratithi Investment, Ankur Capital,ABC World Asia, Sahra Growth Capital
EM3 Agriservices	13.3 million dollars	2	3	Global Innovation fund, Aspada, Soros Economic Development Fund
Intello Labs	14 million dollars	8	10	Saama Capital, Avaana Capital, Omnivore, Nexus etc.
Aibono	6 million dollars	6	13	Artha Impact,Rebright partners, Mitsui Sumitomo,Rianta Capital etc.

Source: Compiled by Author from respective websites of the Startups and https://www.crunchbase.com/

It can be observed from the above Table that these agri tech companies are getting the fund requirements from the necessary investors as well as businessmen. In fact, the Government is also very much interested in helping out these startups by encouraging public-private partnership through linkage with NABARD to provide them with blended capital requirements. These agri tech companies are bringing along with them innovative technology which is in fact aiming at increasing the agricultural productivity.

3.3 Leveraging Modern Technology by these Agritech Companies

In this section an endeavor has been made to understand how these agri tech companies are leveraging technology to help the farmers and increase the agricultural productivity.

Ninja Carts: It basically utilizes artificial intelligence, machine learning, and data science to take decisions. Diagnostic analytics techniques are utilized which combine growth plan with historic demand data to prepare weekly sales and procurement forecast. Predictive analytics are used to identify potential threat to supply chain and neutralize errors. As the farmers were not getting better price and the retailers not able to get fresh quality of produce Ninja Carts to bridge the gap, aims to eliminate the intermediaries in the food supply chain by providing robust technology and analytics.

Waycool: This startup aims to provide a technology-based supply chain approach. The company utilizes artificial intelligence, machine learning and robotic process automation to provide value to the suppliers. It emphasizes on leveraging technology to increase farmer's income and to provide innovative quality management as well as food technology process. Our country faces food scarcity not due to food shortage but due to wastage of food.

This startup actually tries to reduce food wastage by using innovative technology.

Agrostar: This startup leverages technology and data to solve farmers' problems to access good quality agricultural produce and also bridge the knowledge gap due to traditional practices. Digitization and contemporary management practices actually adds value to the farming. Agrostar utilizes innovative technological practice through mobile app to connect with farmers to identify crop disease, speed up the loan processing as well as enhance supply chain analytics. It is leveraging technology to increase crop yields as well as the income of the farmers.

Dehaat: It connects farmers to suppliers and buyers on a single platform. It aims to increase crop yield by using innovative technology. It utilizes artificial intelligence-enabled technology in revolutionizing supply chain and production efficiency in the farming sector. It helps the farmers to increase their incomes.

Stell App: This Agri tech company leverages Big data, cloud, internet of things as well as data analytics to improve supply chain parameters of agri diary in terms of milk production, milk procurement, cold chain as well as farmer's payment. The aim of these startups is to procure comprehensive farm optimization and monitoring support to help the dairy farmers to maximize the profits.

Bijak: This agri tech company utilizes a technology platform that enables agri commodity trading thus narrowing the gap between the buyers and the sellers through a single platform and providing a trusted marketplace by digitizing the transactions. Through technology innovation, it tries to bring transparency into the agriculture value chain and also does a buyer/seller ratings system.

Cropin Technology: This startup utilizes artificial intelligence, big data analytics and remote sensing to analyze data for crops for agricultural processors, input providers as well as lenders. It utilizes innovative technology for the smart farming revolution. It endeavors to create an intelligent, inter-connected data platform.

EM3 Agri services: This startup actually provides farming technology to the farmers on a paid basis through its dedicated call center as well as through an app to help the small-scale farmers to tackle the globalization menace and advances in agricultural technology. It helps the farmers to handle basic as well as precision farm operation through the entire crop production cycle.

Intello Labs: It utilizes artificial intelligence-based agricultural technology to make a better-quality product with a faster process. It leverages innovative technology using machine learning, and data analytics to transform quality processes and make them more efficient, objective, and less wasteful. Through digitizing technology, the startup also thrives towards fair pricing.

Aibono: This startup aims towards helping and recommending the farmers with regard to what needs to be done on day to day basis. It uses remote sensing technology to collect elements like soil data or leave coloration and take other images which will be uploaded on the digital platform. There is also a tech support expert who will be available in the call center to help out the farmers.

4. CONCLUSION

It can be observed from the above that the agri tech startups are bringing a revolution in agriculture farming and supply chain. The Government of India is also taking a number of steps to boost the setup of agri tech companies in India. These startups are utilizing various machine learning tools, data analytics, and artificial intelligence system to boost agriculture productivity and help farmers. One of the main reasons for the scarcity of food in the country is the gap between the farmers and retailers. The farmers are unable to derive the best possible price for their produce and the retailers are unable to get fresh quality of food to be given to the consumers. This is mainly because of the presence of a number of intermediaries. Agri tech startups try to bridge this gap by using technological innovations and help out the farmer as well as the retailers. These agri tech companies also thrive to leverage technology to help the farmers in increasing crop yield, improve the harvesting process, and improve production efficiency in the farming sector. MA

References:

Journals:

1. *Ganeshkumar, C., & Khan, A. (2021). Mapping of Agritech Companies in Indian Agricultural Value Chain. In Proceedings of the Second International Conference on Information Management and Machine Intelligence (pp. 155-161). Springer, Singapore.*
2. *Ganeshkumar, C., David, A., & Jebasingh, D. R. (2022). Digital Transformation: Artificial Intelligence Based Product Benefits and Problems of Agritech Industry. In Agri-Food 4.0. Emerald Publishing Limited.*
3. *Narayanan, L. B., Dayal, G., & Dublish, S. (2021). Agritech: A much-needed digital revolution for the agri sector. LKS In Focus.*
4. *Rao, E. P. (2022). Digital Agriculture–A Future Disruption in India. Indian Journal of Fertilisers, 18(4), 334-342.*
5. *Narayanan, L. B., & Dublish, S. (2021). Investments in agritech sector. LKS In Focus.*

Websites:

1. *https://agrostar.in*
2. *https://agrevolution.in/*
3. *https://www.stellapps.com/*
4. *https://www.bijak.in*
5. *https://www.digitalgreen.org/*
6. *https://www.em3agri.com/*
7. *https://www.intellolabs.com*
8. *https://www.aibono.com/*
9. *https://waycool.in/*
10. *https://ninjacart.in*

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Banking, Financial Services and Insurance Board of the Institute in its objective of knowledge dissemination has chosen the month of June as the Insurance Month. It was celebrated with much fanfare in 2021 and in order to bring a continuity, we have again decided to celebrate June 2022 as an Insurance Month. We have two webinars to be organized with National Insurance Academy (NIA) with whom we have a MoU. We hope that such webinars will bring an understanding of very pertinent issues of Insurance Sector.

Lists of Webinars

(Streaming Link will be made available on the Institute's website)

Webinar	Topic	Date
Webinar 1 **(Inaugural)**	Integration of Environmental, Social and Governance (ESG) with Enterprise Risk Management (ERM) - An Effective Corporate Governance Strategy	11.06.2022
Webinar 2	Confronting the implications of Climate Change on Insurance Industry **(in association with NIA)**	14.06.2022
Webinar 3	Cyber Insurance – Risk Mitigation for Cyber Security and Data Protection **(in association with NIA)**	30.06.2022

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ARTIFICIAL INTELLIGENCE (AI) BASED SMART AGRICULTURE FOR SUSTAINABLE DEVELOPMENT

Abstract

Agriculture plays a significant role in the economic growth and development. Over the years, AI-based technological improvements have profoundly impacted farming and transformed the business. These technologies could help farmers to be proactive rather than reactive in their farming practices. These technologies allow farmers to boost agricultural yield, soil analysis, pest attack monitoring, water management, seed management, crop rotation, better control of harvesting conditions and timing, nutrition management, and reduced waste. However, in order to reap all these benefits, effective collaboration between Government, science, and business is also vital. This article attempts to outline the significant AI based smart agricultural technologies, their significance and the challenges confronting Indian agriculture with potential solutions.

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"AI and Big Data will play major roles in the agriculture sector in coming years since data is key to targeted development".

-Sh.Sanjay Agarwal
Secretary, Ministry of Agriculture & Farmers' Welfare
Government of India

INTRODUCTION

The agriculture sector in India is one of the most important in the country's economy, with a current worth of US$ 370 billion. According to the United Nations Food and Agriculture Organization, the population will increase from 7.5 billion to 9.7 billion by 2050, putting further strain on the land[1]. Agricultural producers and enterprises are under tremendous pressure to develop new strategies for increasing productivity while reducing expenses and waste. The technological advancement in agriculture relies on artificial intelligence (AI) based technologies, and these technologies could signal a significant paradigm shift in the agriculture sector. AI-based technologies work by interpreting patterns in huge volumes of data and turning those interpretations into human-like actions. According to McKinsey and the National Association of Software and Service Companies (NASSCOM), an Indian NGO, accessing 15 important agricultural databases might yield a $65 billion potential in India alone. The AI-based agricultural market was worth USD 766.41 million in 2020 and is expected to reach USD 2468.02 million by 2026, increasing at a CAGR of 21.52 per cent [2]. The biggest businesses involved in AI-based agricultural technologies include Microsoft Corporation, IBM Corporation, Granular Inc., aWhere Inc., and Prospera Technologies Ltd. Microsoft's AI-Sowing app and Infosys Precision Crop Management are both game-changers in this space[3]. It is depicted that the AI market has an enormous potential in the agriculture sector and hence these business houses planned to invest money in this sector.

AI-BASED SMART AGRICULTURAL TECHNOLOGIES

There are many smart and sustainable technologies, such as precision agriculture, vertical farming, smart green housing, image processing, and agricultural drones/robotics, which can be used in agriculture.

Precision agriculture, vertical farming, smart green housing, image processing, and agricultural drones/robotics, which can be used in agriculture

a. Precision agriculture

Precision agriculture is the concept of employing information technologies such as global positioning systems, produce monitors, remote map-based devices, geographic information systems and targeting systems to gather precious, in-depth data from a wide range of sources, which help to take an accurate and timely decision for better yield. Precision agriculture helps to increase agricultural productivity, diminishing the use of chemicals in agricultural production, reducing labour period, efficient usage of water management, distribution of advanced farming methods to improve product quality, quantity, and cost-effectiveness, as well as developing positive perceptions and shifting farmers' socio-economic conditions[4].

b. Vertical farming

Vertical farming is the urban cultivation of crops within a metropolis or urban area building, with the floors constructed to accommodate specific crops. Vertical farming involves four key components: producing more food per square meter by stacking crops, proper balance of natural and artificial light, using hydroponics or aeroponics instead of soil, and incorporating sustainability characteristics to offset energy costs. Vertical farming has many advantages, including improved crop yields, less water consumption (95 per cent less than conventional farming), less weather impact, increased organic agricultural yields, human and environmental safety, and no exposure to heavy farming equipment or illness[5].

c. Smart greenhouse

Greenhouse agriculture is a potential and alternative approach for future food security and socio-ecological sustainability. In this, a house-like enclosure made of glass or plastic to protect the plants from pests, illnesses, and other harmful environmental conditions is used. Cold frame greenhouse farms can be set up to retain heat from the sun and keep the plants warm in cold weather. However, shaded greenhouses are used in dry and hot weather, which helps to maintain the plants' moisture. These techniques allow farmers to extend the planting season for growing various crops by modifying the local environmental factors like temperature, light, moisture and nutrients that ultimately produce high-quality crops[6].

d. Image processing

Image processing is a technique that displays the detected disease in the respective plant, as well as the reason for the cause and what method should

be used to control the disease. It also displays moisture, humidity, temperature, and so on. The source of radiation is essential in image processing. The sources are Gamma-ray imaging, X-ray imaging, imaging in the UV band, imaging in the visible band and IR band, imaging in the microwave band, and imaging in the radio band. Image processing can improve decision-making in areas such as vegetation measurement, irrigation, fruit sorting, etc. As with weed detection, segmentation and classification in fruit grading systems can be accomplished with high accuracy[7].

e. Agricultural drones/robotics

Agricultural robots and drones integrate routine and uninteresting tasks for agricultural producers, freeing them up to focus on increasing high crop production yield. In agriculture, drones are used for aerial photography, tracking, land auditing, supervising, sprinkling compost, and inspecting infected or decaying crops. However, some of the most common agricultural robot applications are weed control, harvesting and picking, automated mowing, pruning, sowing seeds, spray coating, sorting, and packing[8].

SIGNIFICANCE OF AI-BASED SMART AGRICULTURAL TECHNOLOGIES

The agricultural sector faces various issues like climate impact, plant disease, improper soil analysis, pest infestation, irrigation, inadequate drainage, and many more. But AI-enabled smart agriculture technologies can fulfil the dreams of farmers. Massive structured and unstructured data are generated daily due to the Internet of Things (IoT), such as historical weather patterns, soil composition reports, rainfall, pest infestation, crop moisture, temperature in growing areas, and prediction of the ideal time for harvesting. All such real-time data collected from different farmers/locations may be sensed by cognitive IoT devices, which can provide valuable insights as to how to increase the yield while lowering the cost. AI aids in spraying herbicides on only targeted weed-grown areas, which helps to save money and reduce pollution of the surrounding ecosystem. Therefore, AI-enabled smart technologies in agriculture have produced apps and tools to provide farmers with accurate recommendations on best irrigation and fertilizer treatment times, water management, crop rotation, timely harvesting, crop type, optimum planting, pest attacks, precise pesticides/herbicides spraying and nutrition management, etc.

CHALLENGES OF AI-BASED SMART AGRICULTURAL TECHNOLOGIES

Undoubtedly, AI has redefined traditional methods to boost efficiency and crop production rate with advanced approaches, and its use may ensure higher productivity. But still, many challenges such as availability of IT infrastructure and experts, rural broadband structure, higher power cuts, and higher costs are more considerable hurdles to effectively implementing AI-based smart agricultural technologies in India. Further cost-benefit analysis for adopting digital farming technology also poses a big challenge because of the higher cost of these smart equipment. For instance, an Indian-made drone that may be used for spraying purposes costs around Rs-4 -5 Lakhs[10]. However, while judging it from the financial perspective, we should also keep in mind the aspects of sustainability.

Another big challenge is developing a bridge between the farmers and the data-captured engineers, which will help to define the accountability and responsibility of each person. For example, the responsibility of precisely spraying pesticide/herbicide on the crops needs to be defined. If higher number of traces are found after harvest of the crop, then it has a significant adverse impact on the consumer health after consumption and results in higher rejection of export consignment by the importers, which ultimately leads to many economic losses. Now, another question arises as to who will have the copyright and control over the big data and convert it into valuable information. AI systems require continuous feeding of new information in the data bases used for effective performance.

Moreover, machine learning, artificial intelligence, and advanced algorithm design have advanced at breakneck speed, but collecting well-tagged, meaningful agricultural data is still a big challenge. Therefore, there is a need to define all the stakeholders' responsibility and accountability to effectively implement these smart technologies into the agriculture sector. Apart from this, the misuse of big data is creating additional legal and ethical challenges for regulation and monitoring. Therefore, the Government needs to take the initiative to establish a regulatory architecture in this area.

GOVT. INITIATIVES IN THIS DIRECTION

The Government has taken a few praiseworthy initiatives such as the following:

1. It encourages farmers to employ drones by offering financial incentives through the "Sub-Mission on Agriculture Mechanization."
2. For agricultural initiatives, the Indian Government has launched the Digital

Agriculture Mission 2021-25. Its goal is to assist and expedite projects that use emerging technologies such as artificial intelligence, blockchain, remote sensing, GIS and the usage of drones and robots.

3. The Union Ministry of Agriculture and Farmers' Welfare signed five MOUs (Memorandums of Understanding) with CISCO, Ninjacart, Jio Platforms Limited, ITC Limited, and NCDEX e-markets Limited in September 2021. These memoranda of understanding will include five pilot projects to advance digital agriculture to assist farmers in deciding what crops to produce, what seeds to use, and what best practices to apply to maximize production. In the third quarter of last year, Cisco released an Agricultural Digital Infrastructure (ADI) solution that improves farming and knowledge exchange.

CONCLUSION

AI will considerably improve the farming industry's efficiency. However, we must ensure collaboration between Governments, agricultural scientists, IT firms, and businesses regarding adequate investment and research. It requires mature reforms considering the expanding population, farmer requirements, operational policies, and dwindling farmland. Furthermore, research on a comprehensive framework for evaluating digital agricultural solutions is necessary, including criteria for determining sustainability, social, economic, ecological, technological, quality, and interoperability. To put it another way, artificial intelligence (AI) can assist in the development of a robust agricultural economy. The Government could potentially foster it through public-private partnerships (PPPs). MA

References

1. *https://www.fao.org/3/i6583e/i6583e.pdf (accessed on Apr.19, 2022)*
2. *https://www.marketwatch.com/press-release/artificial-intelligence-ai-market-leading-growth-drivers-emerging-audience-segments-industry-sales-profits-and-forecast-2022-2031-2022-03-21(accessed on Apr.19, 2022).*
3. *https://indianexpress.com/article/india/agriculture-ministry-inks-mou-with-5-firms-7509545/ (accessed on Apr.19, 2022).*
4. *Dharmaraj, V. and Vijayanand, C. (20180. Artificial Intelligence (AI) in Agriculture. International Journal of Current Microbiology and Applied Sciences 7(12): 2122-2128.*
5. *Royston, R. M. and Pavithra, M.P. (2018). Vertical Faming: A Concept. International Journal of Engineering and Techniques. 4 (3): 500-506.*
6. *Kavga, A.; Bitas, D.; Papastavros, K.; Prapopoulos, M. and Kotsiris, G. (2021). Development of an Integrated IoT-based Greenhouse Control Cablebot System. Information and Communication Technologies in Agriculture, Food & Agriculture. 2761: 518-525.*
7. *Vibhute, A. and Bodhe, S. K. (2012). Applications of Image Processing in Agriculture: A Survey. International Journal of Computer Applications. 52 (2):34-40.*
8. *Kulkarni, A. A.; Dhanush, P.; Chetan, B. S.; Thamme Gowda, C. S. and Shrivastava, P. K. (2002). Applications of Automation and Robotics in Agriculture Industries: A Review. International Conference on Mechanical and Energy Technologies.748:1-7.*
9. *Misra, N. N.; Dixit, Y.; Al-Mallahi, A.; Bhullar, M. S.; Upadhyay, R. and Martynenko, A. (2020). IoT, big data and artificial intelligence in agriculture and food industry. IEEE Internet of Things Journal. 1(1): 6305 - 6324.*
10. *https://economictimes.indiatimes.com/news/economy/agriculture/who-will-pay-for-the-kisan-drone/articleshow/89530562.cms?from=mdr (accessed on Apr.29, 2022).*

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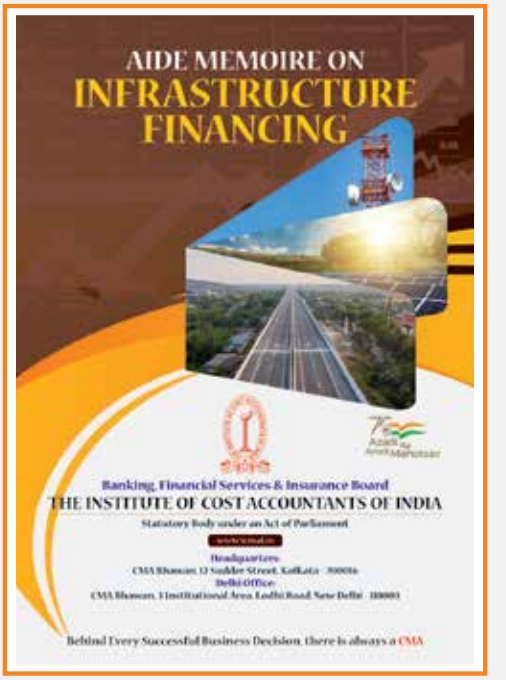

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DOUBLING FARMERS' INCOME BY 2022: THE PROGRESS SO FAR AND FUTURE COURSE OF ACTION

Abstract

This article talks about the National Level Agenda "Agriculture 2022' Doubling Farmers' Income" restated by the Government in February, 2018. It throws light on the importance of the agricultural sector for Indian economy and the need for this agenda of Doubling the Farmers' Income. It analyses the various schemes launched by the Government in this direction, various strategies being adopted by Government, examines what has been done in this direction, and what is next.

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WHY TO DOUBLE FARMERS' INCOME

In India's economy, the agriculture sector plays a very vital role, providing 70 per cent of rural household a dependency over it. By contributing to somewhere around 17 per cent to the total GDP and providing employment to around 58 per cent of the population, it becomes most significant sector of Indian economy. Talking about the share of agriculture in GDP a growth it increased from 17.8 per cent in 2019-20 to 19.9 per cent in 2020-21.

In the year 2021 itself, the GDP from agriculture increased from 4076.41 INR Billion in the third quarter to 6630.37 INR Billion in the fourth quarter of 2021.

Agriculture sector in India has been playing an indispensable role in giving rise to rural income and also providing food security to the ever increasing population of the country.

However, reports of National Crime Records Bureau (NCRB) say that farmers are constituting the most distressed group in the Nation, whose suicide rate is higher than any other sector, and that too is increasing.

According to the data made available with the NCRB, since 1995 to 2016 around 3,00,000 farmers had committed suicide, but the actual number could be more than double this figure.

Agricultural income is on a decline over the past a few years and the debt of the farmers has been increasing; therefore, to arrest this crises, the Government of India has planned to double the farmers' income by 2022. In 2017, Mr.Arun Jaitley the then Finance Minister had proposed this mission of doubling the income of the farmers by 2022. Then the Prime Minister Mr.Narendra Modi restated that commitment as the National Level agenda called "Agriculture 2022' Doubling Farmers Income" in February, 2018.

Reports of National Crime Records Bureau (NCRB) say that farmers are constituting the most distressed group in the Nation

STRATEGIES TO DOUBLE FARMERS INCOME

Traditionally, there were multiple strategies, on which the Government had relied upon to cover up the agricultural crises, but it has focused mainly on asset redistribution through land reforms, technological advancement, infrastructure enhancement and price mechanism, by providing fair market prices through policies like minimum support prices (MSPs).

Various schemes are launched

from time towards the objective of doubling the farmers' income like the following:

Market Intervention Scheme and Price Support Scheme (MIS-PSS)

Pradhan Mantri Fasal Bima Yojana.

PM-KISAN Scheme

Aatmanirbhar Bharat Abhiyan

Pradhan Mantri Krishi Sinchai Yojana

Pradhan Mantri- Annadata Aya Sanrakshan Abhiyan (PM-AASHA)

Rshtriya Krishi Vikas Yojana (RKVY) etc

It is mandatory for the *Commission for Agriculture Costs & Prices (CACP),* a body linked with the Ministry of Agriculture and Farmers Welfare, Government of India, to recommend the minimum support prices (MSPs) to stimulate the cultivators to embrace modern technology and increase productivity.

As of now, CACP suggests MSPs of 23 agricultural products, which includes 7 cereals (wheat, maize, paddy, pearl millet, barley, ragi and sorghum), 5 pulses (tur, moong, urad, gram, lentil) 7 oilseeds (groundnut, soya bean, rapeseed-mustard, sunflower, sesamum, niger seed, safflower and 4 commercials (cotton, raw jute & sugarcane.)

Every year, CACP sends its exhortations to the Government, severally for five groups of commodities namely Kharif crops, Rabi crops, Raw Jute, Copra and Sugarcane, in the form of Reports based on price policy. Before preparing the above mentioned reports of pricing policy, CACP prepares a comprehensive questionnaire, and submits it to all the State Governments and concerned national institutions and Ministries to have their views. Eventually, separate meetings are also conducted with farmers of different States, including State Government representatives and national level organizations like FCI, NAFED, Cotton Corporation of India, Organization of Traders, Processing organizations, Jute Corporation of India and key Central Ministries.

CACP also visits the States in person for on-the-spot assessment of various hurdles and hindrances being faced by the farmers in marketing of their produce and accelerating the productivity level of their crops also.

The Cabinet Committee on Economic Affairs (CCEA), after taking feedback from them, makes a final decision on the level of MSPs.

THE PROGRESS SO FAR

MSPs as recommended by CACP and then fixed by the Government in the year 2021-22 are tabulated hereunder.

	MSP's in Year 2021 - 22	MSP's in Year 2018 -19	% Increase in Yr 21-22 w.r.t Yr 18-19	MSP's in Year 2015 -16	% Increase in Yr 21-22 w.r.t Yr 15-16
Kharif Crops					
Paddy Common	1940	1750	9.79%	1410	27.32%
Paddy Grade 'A'	1960	1770	9.69%	1450	26.02%
Jowar- Hybrid	2738	2430	11.25%	1570	42.66%
Jowar- Maldandi	2758	2450	11.17%	1590	42.35%
Bajra	2250	1950	13.33%	1275	43.33%
Maize	1870	1700	9.09%	1325	29.14%
Ragi	3377	2897	14.21%	1650	51.14%
Tur/ Arhar	6300	5675	9.92%	4625	26.59%
Moong	7275	6975	4.12%	4850	33.33%
Urad	6300	5600	11.11%	4625	26.59%
Ground Nut	5550	4890	11.89%	4030	27.39%
Sunflower Seeds	6015	5388	10.42%	3800	36.82%
Soyabean Black	2500	2500	0.00%	2500	0.00%
Soyabean Yellow	3950	3399	13.95%	2600	34.18%
Sesamum	7307	6249	14.48%	4700	35.68%
Niger Seed	6930	5877	15.19%	3650	47.33%
Medium Staple Cotton	5726	5150	10.06%	3800	33.64%
Long Staple Cotton	6025	5450	9.54%	4100	31.95%
Rabi Crops					
Wheat	2015	1840	8.68%	1525	24.32%

Barley	1635	1440	11.93%	1225	25.08%
Gram	5230	4620	11.66%	3500	33.08%
Lentil	5500	4475	18.64%	3400	38.18%
Rape seed (Mustard)	5050	4200	16.83%	3350	33.66%
Safflower	5441	4945	9.12%	3300	39.35%
Commercial Crops					
Jute	4500	3700	17.78%	2700	40.00%
Sugar cane	290	275	5.17%	230	20.69%

The Ministry of Agriculture and Farmers' Welfare, (having two departments under it namely (i) Agriculture Cooperation and Farmers' Welfare that forms and implements the programs and policies related to crop husbandry (ii) Agriculture Research and Education, that conducts, coordinates and promotes research and education in the field of agriculture) has been allocated Rs. 1,31,531 crores during 2021-22 i.e. a 14 per cent growth over 2019.

The Ministry of Agriculture and Farmers' Welfare has allocated Rs.1,23,018 crores to the Department of Agriculture, Cooperation and Farmers in 2021-22. The Department of Agriculture, Cooperation and Farmers has given 49 per cent of the allocation to PM-KISAN (an income support scheme for farmers) in 2021-22 and has allocated a sum of Rs. 66,531 crores to its other programs and schemes including interest subsidy and crop insurance with an annual growth of 12 per cent over 2019-20. Fifteen per cent of that budget is proposed to be spent on interest subsidy on short term credit to farmers, and 12 per cent is proposed to be spent on the crop insurance scheme i.e. *Pradhan Mantri Fasal Bima Yojana.*

The Ministry of Agriculture and Farmers' Welfare has allocated Rs. 8,514 crores to the Department of Agricultural Research and Education which is 6 per cent more in comparison to the earlier year 2019-20.

The PM-KISAN scheme was launched in February 2019 with an aim of income support of Rs. 6000 annually to the farmers to cater their needs of procuring inputs for appropriate crop health and yields. In 2019-20 the budget allocation to PM-KISAN was Rs. 75000 crore which was expected to be increased to Rs. 87,218 crore.

In 2020-21 the Pradhan Mantri Krishi Sinchai Yojana (which was launched in 2015 under per drop more crop initiative, to increase the coverage of the area under irrigation) has been allocated Rs 4,000 crore which is 56 per cent higher than the revised estimate for the same year.

The Committee on Doubling Farmers' Income (2017), under the scheme **Aatmanirbhar** Bharat, scheme of May 2020, in consultation with the Central Government has come up with an economic package of Agricultural Infrastructure Fund of rupees1 lakh crore under which Government is providing an interest subsidy of 3 per cent on long term loan or investment credit (taken by the small and marginal farmers) of up to 2 crore rupees issued under this fund.

A group constituted by RBI has to review to ensure that the benefit of subsidised credit under Agricultural Credit Scheme should be provided to the cultivators and not the landowners.

Pradhan Mantri Fasal Bima Yojana providing for crop insurance, has been allocated a total sum of Rs. 16,000 crore during 2021-22 which is 5 per cent higher than what was provided during 2020-21.

The National Project on Soil Health and Fertility has been provided Rs. 315 crore during 2021-22 which is 41per cent higher than the revised estimate of 2020-21.

Rashtriya Krishi Vikas Yojana has been provided Rs. 3,712 crore during 2021-22, i.e. 46 per cent higher than the revised estimate of 2020-21

Agricultural marketing, an integrated scheme performing various functions like (i) creation of agricultural marketing infrastructure (ii) conducting agricultural marketing research (iii) development of agro business (iv) E- NAM (National Agriculture Market) has been provided Rs.410 crore during 2021-22, 17 per cent more than what was provided in the revised estimate of 2020-21.

The Indian Council of Agricultural Research (ICAR) has been provided Rs. 5,322 crore in 2021-22, 7 per cent more than the revised estimate of 2020-21.

IS DOUBLING THE FARMERS' INCOME ACHIEVABLE

The policies of Niti Aayog have been focusing mainly on increasing agricultural output and enhancing food security but not explicitly recognizing the need to increase or double the farmers' income and has not mentioned any direct policy or measures to promote farmers' welfare economically.

It is experienced that the growth in

output brings a very small increase in farmers' income as a result of which the farmers' income has remained low.

Even though the MSPs for pulses, oilseeds and copra have been increased by 95.93 and 10.80 times respectively during the last five years i.e.2016-17 to 2020-21 in comparison to previous five years 2009-10 2013-14, the farmers are questioning and alleging that their actual cost of production is far more than what was being suggested and factored in MSPs.

During 2020-21, the estimated expenditure by the Ministry of Agriculture and Farmers' Welfare was Rs. 1,42,762 crore but at revision stage it was reduced to 1,24,520 crore which denotes a reduction of 13 per cent.

PM-KISAN scheme also experienced a cut of Rs. 10,000 crore in its estimated expenditure.

The Ministry Agriculture and Farmers' Welfare spent only Rs. 48,714 crore which was 35 per cent lower than what was budgeted.

In 2021-22 a budgeted sum of Rs. 19,468 crore has been allocated for interest subsidy that was approximately 6 per cent lower than what was budgeted.

For soil health and fertilizers the Department of Fertilizers has been allocated Rs. 79,530 crore during 2021-22 which was 1 per cent lower than that of 2019-20 (81,124).

The actual expenditure of both the departments of Ministry Agriculture and Farmers' was lower than the budgeted allocation in almost all the years from 2012-2021. The contribution of agriculture sector is remarkably decreasing from 51 per cent in 1951 to 19 per cent in 2011 and then to 14.8 per cent in 2019-20.

WHAT'S NEXT: BUDGET 2022-23

Market intervention Scheme and Price Support Scheme (MIS-PSS) has been provided Rs.1,500 crore which is 62 per cent less than the revised estimate of 2021-22.

The Pradhan Mantri Annadata Aya Sanrakshan Abhiyan (PM-AASHA) has been provided only one crore for the year 2022-23 against Rs.400 crore in 2021-22.

The budget allocated for the food and nutritional security has also decreased to Rs.1,395 crore from Rs.1,540 in the revised estimate of 2021-22.

The distribution of pulses to State/ Union Territories for welfare schemes resulted in an expenditure of Rs.50 crore but the budgeted estimate for the same was Rs.300 crore.

The budgeted allocation to Pradhan Mantri Fasal Bima Yojana has also decreased to Rs.15,500 from Rs.15,989 crore during 2021-22.

Agriculture Infrastructure Fund has been provided Rs.500 crore in 2022-23 which was rupees 900 crore as per year's budgeted estimate.

Looking at the bright side of agricultural budget, the Rashtriya Krishi Vikas Yojana has been allocated Rs.10,433 crore.

PM-KiSAN has been allocated Rs.68,000 crore as against , Rs.67,500 during 2021-22.

CONCLUSION

In the current financial year's, session of Rajya Sabha, the Government was asked various questions as to whether any annual surveys were being conducted by the Government or any other methodology being adopted to measure the farmers income, but in answer thje Government just explained its various schemes launched for farmers' welfare instead of specifically explaining/showing any data that could reveal the growth in farmers' income. MA

References

1. *https://www.insightsonindia.com/agriculture/role-of-agriculture-in-indian-economy/*
2. *https://tradingeconomics.com/india/gdp-from-agriculture*
3. *https://www.epw.in/journal/2019/23/special-articles/doubling-indias-farm-incomes.html*
4. *cacp.dacnet.nic.in/content.aspxpid=32*
5. *union budget 22-23*
6. *http://sprsindia.orgbudgetsparliamentdemand-for-grants-2021-22-analysis-agriculture-and-farmers-welfare*
7. *https://www.thehindubusinessline.com/data-stories/deep-dive/doubling-farmers-income-its-still-a-long-road-ahead/article34521906.ece*

THE PERSPECTIVE OF ADVANCED TECHNOLOGY IN AGRICULTURE: AN INITIATIVE TO HELP INDIAN FARMERS

Abstract

The concerns over food insecurities, increasing population growth, effect of global warming, and lack of knowledge and resources in agriculture demand widespread applicability of new advanced technology. All emerging advanced technologies are built on the concept of AI or branches of AI. Agriculture is the primary source of income, and more than half of families living in India depend on it; hence both the private and Government sector need to take appropriate steps to increase the productivity of agriculture by using AI or AI-based technology. In addition, based on a literature review, it is proved that the recent advancement made in AI is more environmentally friendly and helps farmers through increased productivity, reducing waste and providing an opportunity to earn an enormous margin in profit. This article explains the existing challenges being faced by farmers, the necessity to apply advanced technology in agriculture with benefits, and how it helps India to accomplish sustainable development goals.

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INTRODUCTION

Looking at the several initiatives taken by both Government and private sector towards the development of technology based on artificial intelligence (AI) in India, one can conclude that most of the research about advancement concerning AI and other cutting-edge technology is carried out by prestigious technical institutions such as the Indian Institute of Technology (IITs). Deepak Khemani, Professor of Computer Science and Engineering at IIT Madras, wrote a book titled "A First Course in Artificial Intelligence" in the year 2013. This work shows that the research and development initiative in AI and machine learning (ML) was already there before the recent efforts and initiatives taken by the government (*Vempati, 2016*).

In India, to recognise and acknowledge the potentiality and large scale adaptability of AI, *Niti Aayog* released a discussion paper to introduce National Strategy for AI in June 2018. This effort was likewise the outcome of a response to significant research and development accomplished in the field of AI in the countries like USA and China.

Additionally, it was also the result of a speech given by the Prime Minister in *Mann Ki Baat* aired in February 2018, which talks about the launching of the Institute for the development of AI (i.e. Wadhwani Institute of Artificial Intelligence) (*Vempati, 2018*). According to National Strategy for AI (NSAI), the Central Government needs to play a vital role in the widespread application of AI in sectors such as agriculture, health, smart cities and mobility, and education. In addition, NSAI also recommends how both the public and private sectors contribute to nurturing and developing an ecosystem for AI in India. The recommendation is directed towards promoting research continuously, introducing effective skill-related programmes, reskilling the existing workforce, and making efforts to widely spread the idea concerning the adoption of AI while strictly following every guideline of responsible AI. The central theme of the NSAI recommendation was to balance both protecting society's interest and continuous research and development in the field of AI.

All these research and development in AI, ML, and other branches of computer science can help the Government to succeed in their plan and make a significant improvement in sectors including education, health care and agriculture. Further, the state of AI and its feature has the potential to improve the agriculture sector by adopting an approach such as precision farming. In addition, it can help farmers in accessing various Government welfare schemes and thereupon make digital India programme successful.

IMPACT OF GLOBAL WARMING ON FOOD SECURITY

The change in climate across the globe is the result of increasing global warming, which in turn leads to low food production and availability. It has a devastating effect on the world, especially on developing countries. The average reduction of one per cent in consumable food calories in Asia raises the inquiry of how poor and food-insecure countries overcome this challenge and have required money to import food (*Ray et al., 2019*). This will result in increased food insecurities that affect the agricultural ecosystem. In addition to this, the rising sea level has also become a significant concern in the last few years. It is expected that the sea level will rise about 1 meter by the year 2100 (*Rahmstorf, 2007*). It has a detrimental impact on farmers living and doing agricultural activities around the coastal area as the water becomes too salty which is not suitable for growing crops. However, it is essential to understand how several processes involved in agricultural activities (e.g. land clearing) create situations and are responsible for global warming and climate change. It is estimated that 40 per cent of global methane is from deforestation. All of these resulted in a substantial reduction in agricultural production.

Therefore, to achieve the goal of sustainable development, there is an urgent need to implement reformative policy and an effective action plan on two issues; (1) Reforestation and (2) creating environmentally conscious farming behaviour. The recent advancement in technology (e.g. AI, the Internet of Things (IoT), etc.) plays a vital role in doing smart farming (*Das et al., 2018*). It ensures minimizing global warming and climate change and providing food security for poor and developing countries.

WHAT'S WRONG WITH TRADITIONAL FARMING

- The average daily wages paid to agricultural workers are comparatively much lower than what is paid to workers in other professions or services. That is why many workers nowadays choose to work in construction or manufacturing fields and leave farmland.
- In India, a considerable workforce is deployed in agriculture (*Nair, 2021*). However, there is a significant increase in farmers' suicide reported in 2020 compared to 2019, as per the report published by NCRB. Due to this, the total contribution of agriculture to the GDP is also decreasing year after year. Another reason behind the farmers' suicide in India is that farming policies are formulated and implemented by the Government without any dialogue or consultation with the farmers, researchers and experts working in the field of agriculture.
- Farmers must have knowledge about how much of fertilizers need to be used for increasing productivity and provide an adequate amount of nutrition to the soil. Lack of adequate knowledge or less expertise of farmers in the usage of fertilizers sometimes damages the crops. In addition to this, there have been a number of cases in which it is stated that farmers died due to drinking the water contaminated with fertilizers.

APPLICATION OFAI OR AI-BASED TECHNOLOGIES IN AGRICULTURE

There are several ways through which AI help farmers in take up smart farming. As information is crucial and is central to smart farming, it is very important to look how the use of advance technologies improve the overall production and reduce wastage keeping in mind significant improvement both economically and ecologically. It addresses the new approach to farming that remotely monitor the condition of

The primary function of a robot-driven tractor is to decide the area for plantation, time for the harvesting process and doing crisscrossing for farmland more effective and efficient than a human has ever done

crop and soil, measure and alert the temperature for plant growth, use drones to analysing crop health, provide scientific knowledge and skill to farmer, detect pest through smart technology and application of robotic technology in agricultural activities. In addition, recent advancement in scientific knowledge and technology in the field of agriculture provide opportunities to urban citizen to do urban farming (e.g. terrace farming). By doing so, these will also help in reducing deforestation and reforestation process. The key methods used as a part of smart agriculture (i.e. based on using latest advancement made in technology) by farmers and researchers are explained in the following paragraphs.

A. New Approach to Traditional Farming - A Precision Farming

Precision farming is a new approach to adding scientific knowledge and using technology for agricultural activities, which in turn replaces to some extent the century-old cultivation techniques adopted by the farmers for planting and harvesting crops. The major problem in India is that majority of farmers have small piece of agricultural land (e.g. less than one hectare). The main benefit of the application of precision farming is that it can help farmers to increase their production capacity even within the small size of land by providing a wide range of appropriate data.

B. Applying Sensor based Technology

Using AI-based technology, a farmer can remotely control and operate a crop watering system with the use of a laptop and mobile. There is a wide range of sensors used in precision farming. The main benefit of sensors is that they are small in size but can store a gigantic collection of data concerning the temperature of soil and air, information about the health and growing pattern of the crop, detect unhealthy plants, and also provide facility to get adequate feedback (*Levy, 2017).* The approach to adopting precision farming by farmers includes the installation of a device on land where farmers want to do agricultural activities or collect data by using high resolution based drones. These steps enable the farmers to gather vast and specific data efficiently. A farmer can save money that was earlier wasted because of the unavailability of real-time information. As a result of doing this, the ecosystem of farming will change and make agricultural activities more cost-effective which in turn can increase the overall profit of farming that support the livelihood of farmers.

C. Drones - A futuristic approach to smart farming

Recently, the use of drones is increasing in farming. There are many countries in the world including USA and Europe where one can see drones flying over their head. In 2022, Prime Minister of India, Narendra Modi launched one hundred drones (i.e. Kishan Drones) across the country as a new direction towards smart farming. In addition to this, in the 2022 budget speech, Finance Minister Nirmala Sitharaman addressed the nation about upcoming major reforms in the agricultural sector. According to it, the Central Government of India will be promoting Kishan Drones, Organic and chemical-free farming, and smart farming using advanced technology so that it will help farmers across the country in crop and soil management, store and access land records digitally and spray insecticide over agricultural lands through drones. The main aim to use drones in farming is to collect data for farmers and researchers so that they are well informed about crop and soil conditions before taking any decision. It will help farmers, researchers and agronomists, too.

D. Application of Robotics technology in Agriculture

An increasing number of the world population and shrinking cultivable land became concern issues across the globe including in India. It will lead researchers and innovators to do research or innovation towards the application of AI, ML, IoT and robotics in agricultural activities that would meet required demand and ensure food security. Further, advancements in technologies proved to be more cost-effective and environment friendly. It can help to achieve the goal of sustainable agriculture. There is enough data available

regarding the application of robots or robotic technology in a sector like manufacturing, service, transport, etc. However, very few attempts have been made in India towards the use of robotics technology in agriculture.

There are many activities involved in farming from sowing the seeds to examining the condition of soil and harvesting carried out by humans that required accuracy, efficiency, reliability and continuous labour efforts. Robotics technology is used to replace all such work involved in farming with less human intervention.

John Solie from Oklahoma State University made a machine (green seeker sensor) to read and collect information from the plant through sensors. The main purpose of the machine is to inform the farmers regarding the accurate quantity of fertilizer required for a plant to grow. The result came out from the study of one farm showing that the total quantity of fertilizers used decreased to 75 per cent which is time-saving and cost-effective for the farmer. A robot drone tractor is another example of the revolutionizing machine introduced for farming. The primary function of a robot-driven tractor is to decide the area for plantation, time for the harvesting process and doing crisscrossing for farmland more effective and efficient than a human has ever done. Concerning the wastage of seasonal fruit, much research has been done and has also been in progress to pick the fruit at the right time with the use of AI-enabled robots. It helps farmers across the globe to save money and reduce wastage. The Automation Centre for Research and Education (ACRO) developed a machine that works with the vision system to help the farmers in fruit harvesting. However, the research institutes that have been working on automated fruit harvesting machines are less in number and very few out of this are used by farmers.

AGRITECH STARTUPS IN INDIA

Since 2010, many startups and research institutes in the agriculture field have been taking steps to develop innovative ideas, AI-based technology, and create web/mobile-based platforms. The aim is to increase the quality and productivity of crops, boost profitability, connect farmers with distributors through an efficient supply chain, and provide quality food to the people of India. According to the National Association of Software and Service Companies (NASSCOM, 2018), India hosts more than 450 agritech startups. The growing rate of agritech startups is more than 25 per cent. The report also stated that more than 50 per cent of startups aim to improve the supply chain in order to deliver good quality products to the customer. Another focus area is developing advanced machinery and value systems for the farmers that can help to increase productivity and reduce wastage. As a result, farmers can earn more profit than through the traditional practice. The key objective, beneficial group and technology used in agriculture can be understood by referring Table 1.

TABLE 1

Name	Started in	Technology used in agriculture	Key objective	Beneficiary
Ninjacart	2015	Platform such as E-commerce and Mobile	• Connect farmers to Businesses • Increase farmers' income • Solve supply chain problem	Connect 3000 farmers to 4000 distributors
Fasal	2018	AI, IoT and AI driven tool such as data analytics	• Increase productivity • Increase quality of yield • Creating farmers network	Provide service to 20 independent farmers and some B2B farmers
Kamal Kisan	2013	Engineering innovation	• Develop innovative equipment for farmers • Reduce labour • Increase profitability	3000 farmers save more than INR 300,000 per year
FlyBird Farm Innovations	2013	IoT, Mobile App, and Micro irrigation system	• Save water and energy by adopting smart irrigation system • Provide affordable technology to farmers	Installed 400 controllers (sensor based irrigation controller)
KrishiHub	2016	AI	• Reduce wastage through better supply chain • Increase profit • Provide crop information • Price forecasting	Covers more than 600 farmers

Farmizen	2017	Mobile Application	• Provide opportunity to individual to produce organic food • Develop mini farm • Provide alternative source of income to the farmers	More than 750 customers
Drone	2017	Robotics and mapping technology	• Provide data about weather, condition of seeds and soil, health of crop to the farmers • Help farmers to improve productivity and quality of crop	More than 500 farmers used this drone

Source: Anand, et al. (2019). (Compilation of the data)

CONCLUSION

Considering the challenge faced by farmers to meet the increasing demand for agricultural production, one can argue that technological interference proved to be beneficial and effective. The recent advancement made in technology based on AI and its branches proved to be efficient and effective in increasing the overall productivity of farming with less wastage. In India, both Government and private sector play a vital role in developing AI-driven tools and machinery for agriculture. However, the outreach of AI-based technology to the farmers is significantly nominal in numbers. Very few farmers have knowledge about this advanced technology and are benefiting from it. The Government of India should establish some local bodies or institutions all over India, whose primary goal would be to make the farmers aware of such technology and how to use it in farmland. MA

REFERENCES:

1. *Anand, A., & Raj, S. (2019). Agritech startups: the ray of hope in Indian agriculture. Discussion Paper 10, MANAGE-Centre for Agricultural Extension Innovations, Reforms and Agripreneurship (CAEIRA), Hyderabad.*
2. *Das, M., Sharma, A., & Babu, S. C. (2018). Pathways from agriculture-to-nutrition in India: implications for sustainable development goals. Food Security, 10(6), 1561-1576.*
3. *Levy, W. (2017). PRECISION AGRICULTURE: A smart farming approach. Spore, 185, 4–7.*
4. *Nair, S. R. (2021). Agrarian suicides in India: Myth and reality. Development Policy Review, 39(1), 3-21.*
5. *NASSCOM (2019). Agritech in India: Emerging Trends in 2019. https://nasscom.in/knowledge-center/publications/agritech-india-emerging-trends-201.*
6. *Rahmstorf, S. (2007). A semi-empirical approach to projecting future sea-level rise. Science, 315(5810), 368-370.*
7. *Ray, D. K., West, P. C., Clark, M., Gerber, J. S., Prishchepov, A. V., & Chatterjee, S. (2019). Climate change has likely already affected global food production. PloS one, 14(5), e0217148.*
8. *Vempati, S. S. (2016). India and the artificial intelligence revolution (Vol. 1). Carnegie Endowment for International Peace.*
9. *VEMPATI, S. S. (2018). ARTIFICIAL INTELLIGENCE: Grand Challenges for India. India International Centre Quarterly, 45(3/4), 187–195.*
10. *Young, S. (2020). THE FUTURE OF FARMING: ARTIFICIAL INTELLIGENCE AND AGRICULTURE. Harvard International Review, 41(1), 45–47.*

At the Helm

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He joined Mohan Meakin Ltd. as Assistant Accounts Manager in the year 1997 and continued till 2002, and then worked as Deputy Manager till 2007. From 2007-2013, Mr. Kedia was designated as Finance Manager, subsequently promoted as Deputy Company Secretary till 2016. He took over the charge as Vice President-Finance in the year 2016 for a span of 5 years.

We wish CMA (CS) Rajesh Kedia all the best in his future endeavours.

ESG AND SUSTAINABLE AGRICULTURE: FOCUS ON 'TRUE COST' OF AGRICULTURAL OPERATIONS

Abstract

In every economy, agriculture is a central activity which has significant impact on environmental, social and economic aspects of the country. This article presents and highlights the 'true cost of agricultural operation', a system of compilation and aggregation of all relevant costs, including externalities, which not only limit itself to the financial metrics but go beyond the broader considerations of ESG factors and sustainability. To arrive at the true cost of agricultural operations, global concerns about ESG and sustainability aspects necessitate a transition from "incremental change" to "transformational change."

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The Perspective

India is a worldwide agricultural powerhouse. In developing countries like India, agriculture is the most important economic activity and it helps to boost capital formation and provide employment to a large segment of population. If agriculture is not robust, the entire economic development process will be derailed. As the country's population grows at an exponential rate, this sector is becoming increasingly important. Due to increasing population pressure, India is facing a significant rise in food demand, driving up demand for food production.

The agriculture sector is a primary link to all the other sectors/services and is given utmost importance especially in the Indian economy. India has one of the world's largest food management programs. Agriculture employs almost two-thirds of the working population in India. Agriculture witnessed a growth of 4.5 million in employment during fiscal 2021-22, according to CMIE's Consumer Pyramids Household Survey.

The context

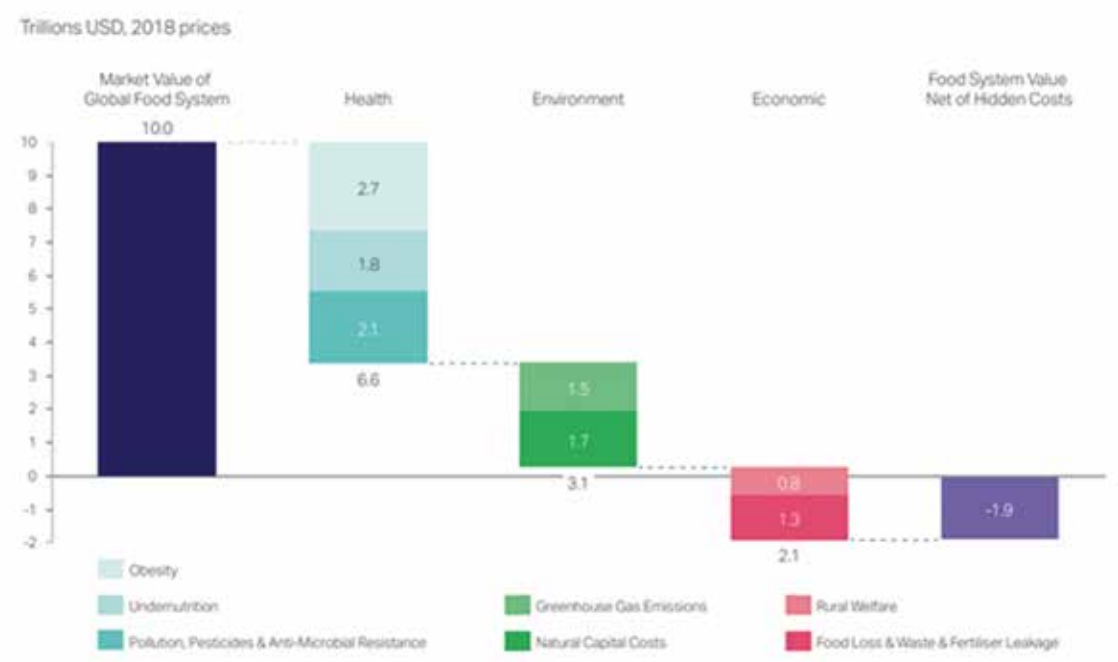
Agricultural operations impact the environment in terms of the following: -

Pollution: Pesticides, fertilizers, and other harmful agriculture related chemicals have the potential to pollute freshwater, marine habitats, air, and soil. In the ecosystem, they might persist for generations. Many pesticides are suspected of affecting human and wildlife hormonal systems.

Water Consumption: Agriculture sector uses over 70 percent of the world's freshwater. The quality of water has a significant impact on agricultural production.

The Concept of ESG

Environmental, social, and governance (ESG) criteria are used to assess investments and encourage responsible behavior of mankind towards the environment. ESG highlights sustainability not only in certain sectors where value-creation is clearly discernible, but also in those where it is less obvious but there is a lot of value-creation potential. The food and agriculture industries have changed dramatically in the last 50 years, increasing the output required to feed a growing global population.

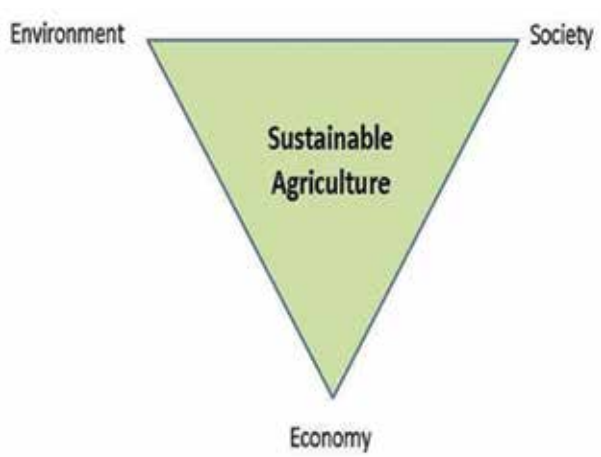


The necessity for long-term sustainable agricultural resource management is becoming more essential as the world's population expands. Agriculture is one of the most significant instrument for conservation and protection of environment around the world because of its strong connections and correlation with the global economy, human societies, and biodiversity. In agriculture, sustainability is a sign of vitality, not a desire. Food producers, farmers, and land investors all across the world who have recognized the sustainability factor, already begun to focus on the same.

With agriculture accounting for over 70% of freshwater usage and 23 percent of greenhouse gas emissions, there are growing concerns about agriculture's role in climate change. With the global population predicted to expand by 2 billion by 2050, agri-businesses today face the problem of sustaining life for both the planet and people. This issue is prevalent in Asia, which feeds half of the world's population while only having a quarter of the world's agricultural area. Multiple facets of environmental, social and governance (ESG) investing involve agriculture.

Sustainable Agriculture

To different stakeholders, sustainable agriculture means different things. For many people, this involves utilizing environmental friendly methods to meet food demand while reducing negative impacts on land, air, water, and soil, as well as lowering climate change and supporting and fostering ecosystem services and habitats for numerous species.



Sustainable agriculture gives equal weight to environmental, social, and economic concerns in agriculture. © 2011 Nature Education Courtesy of Brodt

Agriculture is a primary activity contributing to the economic development of India. It is one of the most revenue generating activities for both Central and the State Government. The Government has been continuously making efforts to promote sustainability practices in the agricultural sector as well which can be seen through the ESG initiatives taken to promote sustainable agriculture practices and reduce cost to the agri-farmers.

The fusion of technology and agriculture by introducing

block chain to promote inclusivity throughout the supply chain is definitely a big step towards the future of the agricultural sector. It can be rightly said that cost and sustainability go hand in hand. The Indian Government is taking steps to promote sustainable agriculture while simultaneously concentrating on lowering costs for farmers.

Shouldering the Cost of Sustainable Agriculture

Agricultural operations involve interplay of fixed, variable, short period and long period costs. It is imperative that agricultural operations become eco friendly and account for all relevant externalities.

Environmental protection and pollution prevention: Adopting sustainable methods can assist farmers in reducing their reliance on non renewable energy, reducing chemical use, and conserving rare resources. The problem of expanding population and need for food creates a long way of keeping the land healthy and replenished.

Reducing costs and focusing on profits: Everyone involved in the agriculture business will profit from better farming, more efficient food production, transportation activities and processes from farm to fork.

Improvement in food production without wastage: As previously noted, population increase is a matter of concern. From the pure production aspect, there is a potential to improve agricultural architecture now and sustainable agriculture is the most promising path.

Cost management in agricultural sector – Focus on ESG

Cultivators are now increasingly aware of the costs and returns of agriculture in recent years. The cultivator evaluates his cost of production by comparing the price he receives for his output from the market. The Government evaluates the cost of production and a suitable return for farmers when deciding on price strategy and announcing minimum support prices for select vital crops. Farmers must compete fiercely due to the fast expansion of technology in agriculture, especially when their products are to be exported. Reducing the cost of agricultural operations is imperative to stay competitive as well as to obtain a higher profit margin so farm costing, or calculating the cost of producing crops, is required. In modern farming, farmers can use farm costing to keep track of escalating costs.

True Cost' of Agriculture activities

True cost accounting aims to price goods and services to reflect the true social and environmental costs. For a thorough knowledge of economic activities and resource use, all financial, environmental and social consequences must be assessed. Many of these costs are currently unaccounted for and are classified as "external" costs. That doesn't make them any less genuine, though. The agricultural operations cost management systems must evolve and move towards true costing.

Benefits of true cost accounting

Efforts to improve and refine real cost accounting are already yielding results. Many industries have discovered new techniques to reduce waste, pollution, improve process management, and address internal accounting issues that have previously allowed good products to subsidize bad ones. The top focus should be gathering exact and comprehensive data on the true costs of industrial commodity crop production. This information would be useful to policymakers in order to take steps to reduce pollution caused by commodity crop growers. Achieving a sustainable food system — one that serves present societal requirements while maintaining sufficient resources for future generations—requires a thorough examination of the relevant externalities associated with modern agriculture. Furthermore, it must be noted that when developing agricultural policies, agricultural producers, enterprises and Government agencies must focus on true cost accounting.

True cost thinking

True-cost thinking addresses the positive and negative effects on the environment and societal welfare with traditional, profit-driven considerations. It incorporates the "three Ps" (planet, people, and profit), acknowledging that treating these difficulties as interwoven and globally interrelated aspects is the only approach to handle economic activity ethically and sustainably. True-cost thinking encourages us to analyze the return on our investments in a more thorough and discerning manner — as individuals, communities, societies, and as a planet. It also allows us to evaluate the kind of future in which we want to invest not only our financial resources, but also our time, energy, and collective attention. There is currently no single agreed-upon formula for precisely determining the actual pricing and long-term repercussions of the wide range of goods and services we use every day. There is also no single way to portray such costs on paper. However, there appears to be growing agreement that it is beneficial to link our economic actions to broader social and environmental challenges, taking into account the indirect, hidden, and long-term consequences (as well as the direct, evident, and short-term consequences) of the decisions that we take

Moving towards 'True cost' Accounting

A simple but fundamental paradigm shift is at the core of it all. One crucial part is to recognize the ways we use to create money, may end up risking our ability to continue producing and enjoying in the long run, then such actions are not our long-term common interest. This is the meaning of the phrase "sustainability." Unfortunately, it isn't engrained in our traditional ways of thinking about economic development and growth, or even about our own well-being.

Conclusion

The question is not whether societies can find a solution to the current and emerging sustainability concerns, but whether they have the will. It is crucial to note that social, economic, and environmental sustainability are all interconnected and important components of an economic system in order to achieve the objective of sustainable agriculture. Poverty-stricken farmers are regularly compelled to exploit natural resources such as soil fertility in order to make end meet, despite the knowledge that environmental degradation may endanger their livelihoods in the long run. Societies may construct more sustainable agriculture systems by adopting regulations that balance social, environmental, and economic concerns. Sustainable agriculture demands determination of True Cost of agricultural operations by duly incorporating the cost of externalities. MA

References

1. *Agrawal, G. D. (1999). Diffuse agricultural water pollution in India. Water science and technology, 39(3), 33-47.*
2. *Maurice, D. C., Adamu, Y., & Joseph, M. (2015). Analysis of cost efficiency in food crop production among small-scale farmers in Adamawa state, Nigeria. Global Journal of Agricultural Sciences, 14(1), 17-25.*
3. *Savić, B., Vasiljević, Z., & Đorđević, D. (2014). Strategic cost management as instrument for improving competitiveness of agribusiness complex*
4. *https://www.cmie.com/*
5. *https://www.in.undp.org/content/india/en/home/blog/SDGS_and_ESGDevising_Inclusive_Business_Models_is_vital_to_foster_Sustainable_Agriculture_and_Livelihoods.html*
6. *https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/why-esg-is-here-to-stay*
7. *https://indianexpress.com/article/explained/why-agricultural-subsidies-worsen-air-pollution-in-north-india-7061919/*
8. *https://www.niti.gov.in/methanol-economy*
9. *https://www.eitfood.eu/blog/post/agricultural-outlook-how-limiting-air-pollution-will-protect-farms*
10. *https://www.google.com/amp/s/www.timesnownews.com/business-economy/budget-2022-inclusive-development-to-benefit-farmers-article-89276881/amp*

AGRICULTURAL RESEARCH, DEVELOPMENT AND EXTENSION (ARD&E) IN INDIA: THE KEY TO FOOD SECURITY

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Abstract

Climate change, coupled with increasing population, is posing a threat to global food security and now a matter of great concern for UN and other international bodies. To boost up production in a sustainable way agricultural research plays an important role. India's present good performance in agriculture is the result of scientific researches in the past. But there is ample scope for improvement in terms of yield, variety, quality, method etc. which require application of advanced technology. Research sector has some structural impediments which need to be taken care of. Development of agriculture will be possible only by proper blending of commerce with scientific knowledge which will enable India to become self-reliant.

INTRODUCTION

Food security in a country like India, which is large, economically backward and densely populated, always remains a major issue. Food security is not possible without adequate agricultural production within the country. More production, is possible only through scientific research and innovation.

In the past, India, a famine-starved country as British had left it, dependent on foreign-aid and import for food for next two decades, was able to come out of that condition with judicious application of science and technology in different sectors of agriculture and achieved self-sufficiency in food production. It ranks second in terms of global farm output and net exporter in agriculture since 1992. But after 1990 no major path-breaking scientific steps have been taken in agriculture and it is just following "business-as-usual".

Meantime agriculture production is showing a declining trend. Yields of most crops have reached their plateau. Climate change has started to take its toll on agricultural productivity. Incidence of pest and diseases, a consequence of global warming, has increased resulting in more harvest loss. Possibility of further expansion of arable land is restricted for loss of biodiversity and other environmental issues. Existing farming practice is not capable of tackling these challenges.

Unless India rises to the occasion in time and initiates necessary measures to revitalise its agriculture research sector, it may find it difficult to feed its vast population projected as 1.5 billion by 2050.

AGRICULTURAL R D& E-GLOBAL SCENARIO

The first conscious attempt to solve the world's food problem through technological innovation was made in 1960 when the Norwegian-American agronomist Norman Borlaug developed a dwarf variety of wheat in his laboratory at Mexico which when planted at high density in the field and cultivated with application of chemical fertilizer, controlled irrigation and farm machinery resulted in manifold increase in crop-yield. India, led by scientist MS Swaminathan, was one first countries (next to Mexico)

to embrace the technology and demonstrate its success. The process later was applied to other cereal crops and adopted by many other countries. It was known as green revolution. In spite of stern criticism developed in later period against green revolution it is no denying a fact that without green revolution world would not be able to feed even fifty percent of its current population.

During eighties and nineties, led by digital technology, investment in agriculture was on decline. Food price shock in 2007-08 made world authority to revisit agriculture sector and put necessary impetus in its research but in a direction that will remove the short-comings of green revolution.

Green revolution concentrated on increased production, not farmer's income. It involved costly inputs and could be made economically viable only with heavy subsidy by respective governments on seed, fertiliser, energy (diesel and electricity) etc. Increased yield often led to lower price and the profit could not match the related cost. Moreover, its benefit could be reaped by a section of rich farmers only while large population of small and marginal farmers were left out. Also the process exploited natural resources like soil and water heavily resulting ecological imbalance.

Current agricultural research aims to develop methods which will be economically viable, socially acceptable and environmentally sustainable. It focuses on the following aspects:

1. From earlier top-down, supply-driven approach it has taken a bottom-up, demand-driven and most importantly farmer-centric approach. Research topic is selected in consultation with them, recognizing their needs with regional variation.
2. Green revolution technology required large land holding whereas majority of farmers in world hold land between 1-3 ha. Hence research now gives more attention to the need of small and marginal farmers.
3. Conventional research concentrated on crop development, mainly wheat and rice. Now with changed dietary habits the emphasis is on products like fruits, vegetables, dairy and poultry products with more nutrient value and higher price. Simultaneously research to enrich existing crops with more nutrients and to find alternatives of cereal crops such as millet, sorghums cassava is also in the process. This broadens the scope of farmers' income.
4. Women form a large part of agricultural labour particularly hired labour. Their roles are now acknowledged to improve their income. For instance, horticulture is a sector which employs more women. Hence development of horticulture will ensure their betterment.
5. Tremendous progress in biotechnology and molecular biology since nineties, especially in current millennium has opened a new horizon in agriculture. Scientists have developed new plant-species with qualities like climate-resilience, pest-resistance, more-nutrient, higher-yield etc and/or animal breed with higher productivity. This new arena of research in agriculture is often termed as gene revolution.
6. Taking due cognizance of environmental aspects, new farming techniques are developed which help to preserve natural resources. Conservation agriculture and, organic farming is now being promoted as environment-friendly but their large scale application in an economically beneficial way is yet to be developed.

AGRICULTURAL R, D&E- INDIAN SCENARIO

Indian Council of Agricultural Research (ICAR) is the apex body in India for co-ordinating research and education in agriculture at national level. Its various divisions are committed to different branches of agriculture, viz., crop, animal, fisheries, horticulture agriculture engineering etc. ICAR has 111 research institutes spread across the country and devoted to specific area, 6 national bureaux to conduct research in basic sciences, 64 agricultural universities to impart educations and conduct research at State level, 4 Central universities, number of Krishi Vigyan Kendras to conduct field level experiments and extension services. As per ADB Report 2014, India has one of the world's largest agricultural research systems and most qualified research staffs.

Yet Indian agriculture is suffering from some chronic problems which offer ample scope for its researchers.

1. Productivity of all major crops is low and yield gaps are high when compared to world average or its neighbouring countries like China or Vietnam.
2. Cultivation is more water intensive resulting in depletion of ground water to an alarming level.
3. Although use of fertiliser or pesticides are not excessive, improper use of fertiliser with mono-crop culture has reduced soil's nutrition value while use of low quality pesticides increases risk of toxicity in plants in addition to huge output losses due to pests and weeds.
4. Surplus production is pre-dominantly crop-centric and India has to pay heavy import bill in respect of vegetable oil or pulses. Potentials of other products such as fruits, vegetables, dairy, animal husbandry having relatively

higher contribution in Agri-GDP have not been exploited in full. Potential of aromatic plants, medicinal plants remain untapped.

Some structural defects persist in the sector which hinders its growth.

Fund constraints: World Bank recommends spending on agricultural research as 1 per cent of agricultural GDP. Most developed countries spend much higher amount, up-to 3 per cent. India spends only .4 per cent on research or 0.54 per cent including extension, which is even lower than many other South-Asian developing countries. Moreover, a large part of that goes to meet salary and other administrative cost, little left for basic or applied research. China to meet its problem of insufficient resource has grouped its research institutes in two categories- commercial and non-commercial. While the latter category is engaged in core research and gets more public fund, revenue of the former largely depends on commercial source. As per WTO agreement subsidies on agriculture to be removed in phases, released fund could be deployed in research, as UNEP suggests.

Technology Gap: India is lagging far behind in modern technology, particularly in the area of biotechnology, which is becoming a major threat in the present day context. In green revolution, technology was developed by public institutions and open to all. In contrast, the sector is now highly corporatized and new technologies are well protected under patent rights, not accessible freely. Also, licence fee for accession is quite high. A fact that world's seed industry is becoming exceedingly monopoly of few multinational corporate giants is becoming a global concern. Recent legal dispute between seed manufacturing company Monsanto and its Indian licensee Nuziveedu over fixation and payment of licence fee may be an eye-opener. To combat this, China in the last decade has invested heavily in seed development sector.

India, led by scientist MS Swaminathan, was one first countries (next to Mexico) to embrace the technology

Recent acquisition of world's largest seed manufacturer Syngenta by State owned Chem-China is another step in this direction. India's seed industry is heavily dependent on foreign technology. It is urgently required to develop indigenous technology in collaboration with foreign institutions. Some initiative has already been taken in rice sector which needs to be pursued.

Low private investment : In developed countries agricultural research, particularly product development, is largely sponsored by private organizations while research on basic technology is carried out at Government institution. In India private investment though increasing, is still quite low. While private investment is considered more efficient and productive than public expenditure, there is also the possibility that selection of research topic by private sector will be done more with commercial interest rather than for public good. It is necessary to design proper policy with incentive to attract private investment in the right direction. India's ambiguous patent regime is one reason that is deterring private investment. Private firms are reluctant to invest unless their commercial interest is protected. In India, agricultural tools and chemicals come under Indian Patent law of 1970, amended in 2005, while Protection of Plant Variety and Farmers' Right Act, 2001 provides patent right to the plant breeders which also protects farmers from exploitation of breeders and saves their rights on inherited knowledge. However, its many clauses and definitions are not clear and interpretations widely differ. Most agricultural patents taken in the past are by foreign companies, as the survey noted.

Weak Extension Linkage: 'Extension service' means dissemination of research knowledge from experiment station to farmers' field with necessary training for their adaptation. That requires deep rural penetration with trained extension staff. The services in India are provided by Agriculture Technology Management Agency (ATMA), KVK, SAU under ICAR. Performance of these could not be up-to the expectation due to lack of manpower and specialized staff. Research scholars are often more oriented towards academic career rather than field-level activities. Digital platforms provide one-way information on weather or market. Services provided by some large agro-based companies have only limited coverage. Linking newly developed agri-start-ups with research centres may be helpful.

People opposition against GM technology: Genetically Modified species raises severe opposition from several corners like NGOs, social activists, environmentalists on issues like health hazard or ecological imbalances. Although these claims cannot be ruled out totally, unfortunately most of the allegations are made from mythical belief or wild guess without any scientific proof, as pointed out by the experts. Also the movement is highly polarised between EU and USA indicating the possibility of commercial interest. India so far has approved only one GM crop i.e. Bt cotton and a good many numbers awaiting under Supreme Court injunction. Benefits and possibility of biotechnology in general, or genetic engineering in particular, is well beyond question. Apart from higher yield it could also reduce the requirement of water, fertilizer, pesticide etc thus reducing the input cost. Negative impact, if any, as cited by its opponents, is not the flaw of technology but its inefficient or premature use by its producers on profit motive. What is needed is to

build up the necessary infrastructure for reliable testing before commercial release of GM species and complete database.

CONCLUSION

As per ADB report one-unit investment in ARD&E generates ten units of return. Indian ARD&E system needs reforms to become more responsive and deliver the expected result. The country's present initiative towards agriculture sector reform has focussed on market only (in line with WTO recommendation) with oblique reference to infrastructure. Research and development couldn't find its place in reform agenda. Research takes time to bear.

its fruit, even ten years, and any delay may be disastrous. Proper blending of science with commerce will enable the country to become self-reliant and improve farmer's income. MA

REFERENCES

1. *ADB WP, December 2014*
2. *IJAE, JAN-MAR 2022, Swaminathan*
3. *Indian agriculture toward 2030, Singh et al*
4. *S. Babu et al, A comparative analysis of ARDE reform in India and China*
5. *I-net article, Challenges India in agriculture, Deepak Pental*
6. *ICRIER review report on Indian Agricultural Extension System, 2018*
7. *IJIPM, January 2014, Mehta et al*
8. *Biotechnology in Indian Agriculture, C Rao, M Dev.*
9. *WB, FAO reports.*
10. *Media reports.*

DIFFUSION AND ADOPTION OF AGRICULTURAL TECHNOLOGY AMONG THE FARMER HOUSEHOLDS: A STUDY OF FARMER HOUSEHOLDS IN KUTTANAD, KERALA

Abstract

In the modernization of the farm sector, mechanization and the use of technology matter a lot. But, the success of farm technology depends on its diffusion and adoption by the farmers. This article looks into the level of technology adoption by the farmers and examines the socio-economic factors that determine the categorization of farmers into different levels of technology adopters. The study reveals that technology gets diffused mainly through neighbours, relatives, and opinion leaders (Localite Channels). It also shows that variables like age, education, and size of landholding are significantly associated with the adoption of technology by the farmers. It also suggests that for technology adoption to be successful, farmers must be properly educated, and fragmentation of land should be discouraged.

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INTRODUCTION

Increasing agriculture production while causing minimum or no environmental disturbances assumes greater importance. It has been proved that technology adoption by the farmers has the potential to play a significant role in revitalizing agriculture in a sustainable way. Nevertheless, technology adoption by the farmers is a herculean task as the farmers are generally averse to changes in the mode and method of production due to a number of factors. The present study intends to focus on the influence of socio-economic characteristics of farmers on the level of technology adoption.

CONCEPTUAL FRAMEWORK

Diffusion implies the spread of new things and practices among the users or intended entities. Diffusion often happens through different communication channels. Communication channels involve interpersonal channels (where face-to-face interaction between one or two persons leads to the diffusion of technology at different levels), mass media, and social media channels (which also play a significant role in the diffusion of innovation among

the farmers at large), localite channels (which refer to those which exist within the social system in which the farmers live in like neighbours, relatives, and opinion leaders) and cosmopolite channels (which include people and institutions outside the social system like the extension workers of agricultural departments, sales personnel of companies selling the new machines).

Obviously, all farmers do not adopt technology at once. Therefore, it is important that agricultural extension workers identify those farmers who are likely to adopt it early and who lag behind. Picking up the 'early birds' in technology adoption is very crucial in farming as farmers are generally skeptical about embracing new technologies. Adoption always follows a special pattern where it grows at a slower pace in the beginning and gains momentum later on. Therefore, starting up the adoption is said to be critical in the adoption of farming technologies. Based on the readiness to adopt innovation, farmers could be classified as under:

1. **Early Adopters** - Farmers who tend to adopt the technology much earlier than others, and therefore others look forward to this category with respect, and hence the early adopters are recognized as a 'respectable category'. It needs to be understood that normally early adopters are a few in number.
2. **Early Majority Adopters** - Farmers who do not jump into adopting the technology as soon as it is introduced, but start adopting it after deliberation with their peer groups, and having observed the early adopters. Therefore, this category is often called 'deliberators'.
3. **The late Majority** - The late majority adopts new ideas and technology at a later stage. They adopt it out of economic necessity and pressure. They always doubt the new idea and the technology, and hence they are often called 'Sceptical'.
4. **Laggards** - Those who are the last to adopt new ideas or technology. They live with a traditional mind ('Traditional') and attempt to match everything with the past. When laggards take the decision to adopt something, it may have been superseded by a new idea.

LITERATURE SURVEY

Farmers especially in the high land areas are generally averse to adoption. In a study, *Fujisaka* narrates the possible six reasons for the poor adoption of technology by farmers of upland agriculture in Southeast Asia (*Fujisaka, 1994*). On the question as to what determines the level of adoption of technology by farmers, country-specific studies have found that market access, private participation, dissemination of information, membership in farmer groups and cooperatives, farmer training, and access to credit have positively influenced technology adoption (*Kumar, et al., 2020).* Studies on digital farming have examined the problems involved in the kind of technologies to be adopted by the farmers rather than the farmer-centric factors that impede the adoption of farm technologies (*Shang, Heckelei, Gerullis, Börner, & Rasch, 2021*). Farmers having contact with the project technicians and extension officers of projects implementing farm technologies tend to adopt new technologies faster than others (*Chitere, 1998*). The farm and farmer household features like farm size, gender, and education have had a significantly higher influence on the level of technology adoption (*Ladebo, 1999; Franzel, Ndufa, J. K, Obonyo, C. O, Bekele, T, & Coe, R, 2000*). Government policy also appeared to have a significant influence on the technology adoption by farmers (*Sail, S, Norman, D, & Featherstone, A. M, 2000*). The inclusion of farmers in the technology development process has had a considerably higher influence on the technology adoption by farmers (*Sinclair, F. L, 2001*). Farmers' perceptions of the features of technology to be adopted also influence the adoption decisions (*Hays, H. M & Raheja, A. K, 1977*).

OBJECTIVE OF THE STUDY

The present study intends to identify the communication channels of diffusion of agricultural technology among the farmers and to examine the influence of socio-economic variables on the adoption of technology by farmers.

METHODOLOGY

Employing a semi-structured interview schedule, we interviewed 120 farmers chosen through random sampling from the Kuttanad Taluk of Alappuzha District. The Chi-Square test of independence was used to understand the association between different variables in the study.

ANALYSIS AND DISCUSSION

Table 1 provides a description of the socio-economic characteristics of farmer households under this study.

TABLE 1 SOCIO ECONOMIC CHARACTERISTICS OF SAMPLE FARMER HOUSEHOLDS

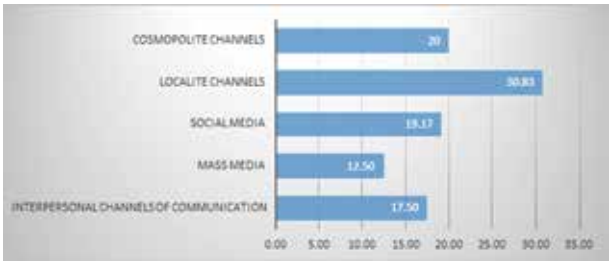
Socio Economic Variable	Category	Percentage of Households
Age	Between 25 and 45	60.00
	Between 46 and 55	44.00
	Above 55	16.00
Gender	Male	78.30
	Female	21.70
Education	Below SSLC	25.00
	SSLC	46.70
	Plus Two and Above	28.30

Caste	General	30.80
	OBC	32.50
	OEC	26.70
	SC/ST	10.00
Ownership of Land Holding	Own land	70.8
	Land on Lease	29.2
Size of Land Holding	Small	10.8
	Medium	50.8
	Large	38.3
Income from other Sources	Yes, do have	59.2
	No, don't have	40.8

SOURCES OF TECHNOLOGY DIFFUSION

The study shows that most of the farmers (30.83 per cent) consider localite channels like neighbours, relatives and opinion leaders as the main source of technology diffusion followed by cosmopolite channels (like extension works and officers), and social media (Figure No.1).

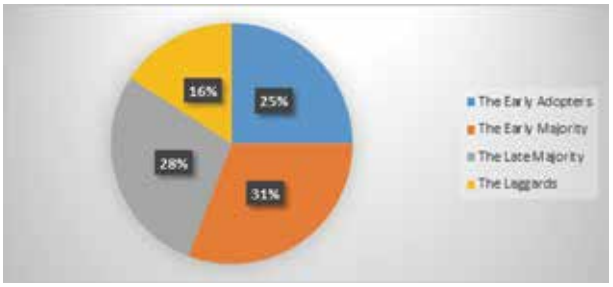
FIGURE 1 SOURCES OF TECHNOLOGY DIFFUSION AMONG FARMER HOUSEHOLDS



TECHNOLOGY ADOPTER CLASSIFICATION OF FARMERS

It is found that 25 per cent of the farmers are early adopters of technology whereas 16 per cent are laggers as they adopt technology at the last. It was further found that 31 per cent of farmers become accustomed to technological change after consultation with others, and they are called 'The Early majority' (Figure No2).

FIGURE 2 DIFFERENT TECHNOLOGY ADOPTER CATEGORIES OF FARMER HOUSEHOLDS



Looking into the influence of age in determining the adopter category of farmer households, it is observed that there is a significant association between age and adopter categories of farmer households. Among the younger, more are found to be adopting technology quicker than others, showing that age has a significant influence on the level of technology adoption (Table No.2). But, it is interesting to note in the case of gender-wise distribution that the P-value is .652, and hence, there is no significant association between gender and the adopter category of farmer households (Table No3).

TABLE 2 AGE WISE DISTRIBUTION OF ADOPTER CATEGORIES OF FARMER HOUSEHOLDS

Adopter Categories	Between 25-45	Between 46-55	Above 56
The Early Adopters	36.67	18.18	0.00
The Early Majority	41.67	25.00	6.25
The Late Majority	21.67	36.36	31.25
The Laggards	0.00	20.45	62.50
Total	**100**	**100**	**100**

P value is significant at .05 percent.

TABLE 3 GENDER WISE DISTRIBUTION OF TECHNOLOGY ADOPTER CATEGORY OF FARMER HOUSEHOLDS

Technology Adopter Categories	Gender		Total
	Male	Female	
The Early Adopters	26.60	19.23	25.00
The Early Majority	28.72	38.46	30.83
The Late Majority	29.79	23.08	28.33
The Laggards	14.89	19.23	15.83
Total	100.00	100.00	100.00

P value is .652

Education is another variable that plays an important role in determining the adopter category of farmers. It is observed that 60 per cent of farmers with Plus Two education are early adopters. The study has found a significant association between education and the level of technology adoption.

TABLE 4 EDUCATION WISE DISTRIBUTION OF TECHNOLOGY ADOPTER CATEGORY OF FARMER HOUSEHOLDS

Adopter Level Category of Households	Education		
	Below SSLC	SSLC	Plus Two
The Early Adopters	0.00	40.00	60.00
The Early Majority	13.51	56.76	29.73
The Late Majority	35.29	50.00	14.71
The Laggards	68.42	31.58	0.00
Total	25.00	46.67	28.33

P value is .00

It is surprising to note that ownership of land does not have any significant association with the adopter category of farmers (Table No5). On the other hand, the size of land held by farmers is significantly associated with the adopter category of farmers. It is observed that 50 per cent of farmers with large holdings are early adopters of technical change (Table No6).

TABLE 5 OWNERSHIP OF LAND AND DIFFERENT ADOPTER CATEGORIES OF FARMERS

Adopter Categories	Own	Lease
The Early Adopters	27.06	20.00
The Early Majority	35.29	20.00
The Late Majority	27.06	31.43
The Laggards	10.59	28.57
Total	100.00	100.00

P value is .055

TABLE 6 SIZE OF HOLDINGS AND DIFFERENT ADOPTER CATEGORY OF FARMER HOUSEHOLDS

Adopter Category	Small Holdings	Medium Holdings	Large Holdings
The Early Adopters	0	11.48	50.00
The Early Majority	7.69	29.51	39.13
The Late Majority	15.38	45.90	8.70
The Laggards	76.92	13.11	2.17
Total	100.00	100.00	100.00

P value is .000

Adoption always follows a special pattern where it grows at a slower pace in the beginning and gains momentum later on

CONCLUSION

The study has found that to bring about sustainable and productive change in the farm sector technology innovation is essential. But the level of technology adoption by the farmer depends on variables like their education level, size of farm holdings, ownership of land, and age. Since education and size of land holdings are significantly associated with the technology adoption by the farmers, it calls for making structural and fundamental changes among farmers through farms education and enhancing the size of land suitable to the application of farm technologies. MA

References

1. *Chitere, O. P. (1998). Diffusion and adoption of farm technologies among resource-limited farmers: Experiences from the ICIPE/UNECA Integrated Pest Management Project in Western Kenya. International Journal of Pest Management, 49-52.*
2. *Franzel, S., Ndufa, J. K, Obonyo, C. O, Bekele, T, & Coe, R. (2000). Farmer-Designed Agroforestry Tree Trials: Farmers' Experiences in Western Kenya. Nairobi: International Centre for Research on Agroforestry.*
3. *Fujisaka, S. (1994). Learning from six reasons why farmers do not adopt innovations intended to improve sustainability of upland agriculture. Agricultural Systems, 409-425.*
4. *Hays, H. M, & Raheja, A. K. (1977). Economics of sole crop cowpea production in Nigeria at the farmer's level using improved practices. Experimental Agriculture, 149-154.*
5. *Jones, G. E. (1963). The Diffusion of Agricultural Innovations. Journal of Agricultural Economics, 387-409.*
6. *Kumar, A., Takeshima, H., Thapa, G., Adhikari, N., Saroj, S., Karkee, M., & Joshi, P. (2020). Adoption and diffusion of improved technologies and production practices in agriculture: Insights from a donor-led intervention in Nepal. Land Use Policy. doi:https://doi.org/10.1016/j.landusepol.2020.104621*
7. *Ladebo, O. (1999). Determinants of adoption of new technologies among rice farmers in Ifo LGA of Ogun State of Nigeria. ActaUniv. agric. Et silvic. Mendel. Brun, 83-87.*
8. *Sail, S, Norman, D, & Featherstone, A. M. (2000). Quantitative assessment of improved rice variety adoption: the farmer's perspective. Agricultural Systems, 129-144.*
9. *Shang, L., Heckelei, T., Gerullis, M., Börner, J., & Rasch, S. (2021). Adoption and diffusion of digital farming technologies - integrating farm-level evidence and system interaction. Agricultural Systems. doi:http://dx.doi.org/10.1016/j.agsy.2021.103074*
10. *Sinclair, F. L. (2001). Process-based research in sustainable agricultural development: integrating social economic and ecological perspectives. Agricultural Systems, 1-3.*

AGRI COST MANAGEMENT AND PROFITABILITY: ROLE OF FUTURES MARKET IN INDIA DURING COVID-19 PANDEMIC

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Abstract

Futures contracts play an important role in price discovery, in portfolio diversification and in hedging of risk arising out of adverse price movements. In this study, an attempt has been made to examine the viability of the futures market in India during the Covid period to facilitate the farmers and others associated with agriculture in their cost management and profitability analysis through hedging. It is found that a number of agricultural commodities have been discontinued by the MCX from futures trading. Out of the eight agricultural commodities continued during this time, only two are found to have been less effective whereas the remaining commodities were effective in providing hedging benefits. The study recommends that the spreading of awareness and education, relating to futures trading in agricultural commodities, may improve the scenario of risk-return analysis for the market participants.

INTRODUCTION

Derivative products like futures and options have an important role to play in price discovery, in portfolio diversification and in hedging of risk arising out of adverse price movements. COVID-19 Pandemic has affected every aspect of the economies across the globe by creating an unusual situation of lockdown. Eventually, the agricultural sector was not out of the purview of the crisis. Farmers and the persons associated with agriculture in India are very much susceptible to financial risk, and therefore, the sustainability of the agricultural sector, as a whole, always remains under threat. In the period of crisis, one of the key factors for survival lies in the strategy of managing risk in relation to movement of prices of commodities. In India, a ready market is available for futures trading of commodities, which must be properly explored so as to provide the farmers and the others associated with agriculture with an instrument that can help them to manage such risk. The assurance of sale or purchase for a predetermined price under the umbrella of an organized commodity exchange is the added benefit that futures contract provides. This study is an attempt to examine the viability of futures trading as a tool of risk management to safeguard against the adverse price movements in agricultural commodities during pandemic, which is likely to contribute immensely in cost management and profitability analysis for the market participants.

FUTURES TRADING MECHANISM

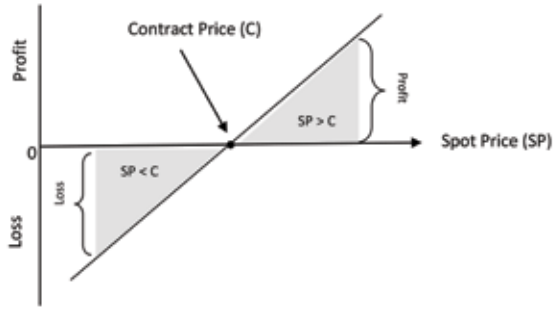
Futures are the exchange traded contracts to buy or sell any underlying asset such as agricultural commodities, crude oil, shares etc. at a certain future date and at a predetermined price. The Exchange, therefore, provides the guarantee that the contract will be honoured.

Now, entering into a futures contract to take the delivery of the underlying asset protects against the

risk of rise in price in the spot market. This is said to be taking a long position. On the other hand, entering into a futures contract to make the delivery of underlying asset protects against the risk of fall in price in the spot market. This is said to be taking a short position.

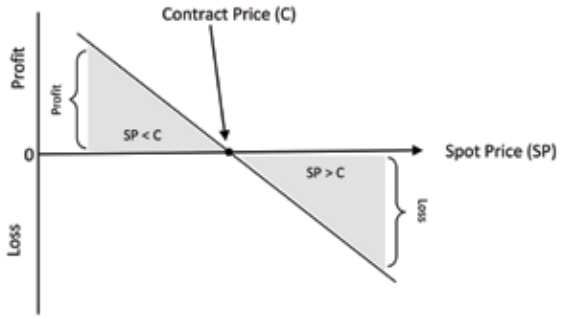
In respect of pay off in futures contracts, it is assured that one person will agree to sell the underlying asset (i.e. the person taking the short position) and another person will agree to buy the underlying asset (i.e. the person taking the long position).

FIGURE 1.1
PAYOFF IN LONG POSITION



The above diagram shows the payoff in long position, where the buyer of the underlying asset reaps profit when the spot price is above the contract price as he will be able to buy at a price less than the prevailing spot price and on the other hand, the buyer of the underlying asset would incur loss if the spot price falls below the contract price as he has to buy at a price higher than the prevailing spot price.

FIGURE 1.2:
PAYOFF IN SHORT POSITION



The above diagram shows the payoff in short position, where the seller of the underlying asset enjoys profit when the spot price is less than the contract price as he will be able to sell at a price higher than the prevailing spot price and on the other hand, the seller of the underlying asset would incur loss if the spot price exceeds the contract price as he has to sell at a price less than the prevailing spot price.

Here, the profit or the loss is notional in nature, i.e. it is the loss of opportunity, not the real loss. A person participating in the futures market along with the spot market would be able to hedge the risk in relation to the fluctuations in the prices in the spot market. Again, in a simple sense, for a seller of the underlying asset, the futures market would provide an assured selling price and for a buyer of the underlying asset, the futures market would provide an assured cost price, both of which have a significant role in respect of cost management and profitability analysis. Considering the scenario of the Indian farmers, there would be no doubt that futures contracts can be a vital instrument for them.

REVIEW OF LITERATURE

In order to examine the role of commodity futures towards management of cost and profitability through risk-return analysis, a close watch at the existing literature becomes necessary. The following is a brief outline of few of them.

Okolie and Ogundeji (2022) commented that "interruptions in agricultural food supply as a result of the pandemic impacted supply and demand shocks with negative impacts on all the four pillars of food security."

Pani et al., (2022) found the presence of long run equilibrium in the spot and the futures market of commodities in India. According to them the policy makers and the regulators are to highlight the efficiency of the futures market so that the participation can be enhanced. The accessibility of data is likely to provide more accurate estimation of price change so that the decisions relating to investment and arbitrage can be taken properly.

Rajput et al., (2013) opined that a better understanding of the mean and variance dynamics relating to the spot and the futures market is important for improved risk management and investment decisions which may also facilitate the policy makers, hedgers and the investors to a great deal.

Tripathy, N. (2011) examined the hedge ratio and the hedging effectiveness of select stock and commodity futures and pointed out that "A hedge is effective if the price movements of the hedged item and the hedging derivative approximately counterbalance each other".

Rout et al., (2021) made an attempt to assess the Indian agricultural commodity market in terms of price discovery, volatility and hedging efficiency. They found that the market is less efficient in terms of hedging to facilitate the participants in their risk management.

OBJECTIVE OF THE STUDY

Reviewing the existing literature, it has been observed that only a few of the studies are found to have reported the present condition of futures trading of agricultural commodities in India which is likely to facilitate the farmers and the persons associated with agriculture in their cost

management and profitability, through risk-return analysis. Therefore, the present study is conducted with the following objectives:

- To explore the futures trading of agricultural commodities in India during COVID-19 Pandemic.
- To compute the hedge ratio and hedging effectiveness of the futures contract for the AGRICULTURAL COMMODITIES TRADED DURING THIS PANDEMIC.

DATA AND METHODOLOGY

In the study, the Multi Commodity Exchange (MCX) has been explored to examine the viability of futures trading in agricultural commodities to facilitate management of cost and profitability through risk-return analysis. In the process of exploring, the latest dates of contract maturity for the agricultural commodities are reported to show the continuation of futures contracts offered by the MCX for various agricultural commodities. The study period was from 1st April 2020 to 31st March 2022. The reason for selection of such study period was the COVID-19 Pandemic which resulted into unusual medical and economic scenario putting almost all the sectors including agricultural sector under tremendous challenge. To examine specifically the contribution of futures trading in the risk-return analysis, the commodities offered by the MCX for futures trading during the said period were checked for their effectiveness in hedging benefits. Theoretically, to compensate the loss/ profit in the spot market by the profit/loss of the futures market is what is called 'hedging through futures market'. It is not that to compensate, one has to take an equal sized position in the other market (say futures market). Determination of optimum hedge ratio has got an important role to play to enable one to manage risk. Therefore, the optimum hedge ratio is the ratio of size of position one should take in the futures market to the size of position taken in the spot market so that total risk of the portfolio becomes minimum. The factors playing an important role in determining optimum hedge ratio are the size of the position, the relative sensitivity of the spot and the futures prices and the amount of risk that one wants to reduce. Mathematically, the hedge ratio (*h*) can be expressed as follows:

$$h = \rho_{S,F} \frac{\sigma_S}{\sigma_F}$$

where,

h = Hedge ratio

σ_S = Standard deviation of the spot price series

σ_F = Standard deviation of the futures price series

ρ = Correlation coefficient of the spot and the futures price series

Again, the return on an unhedged portfolio (R_U) and the return on a hedged portfolio (R_H) can be expressed as

$$R_U = S_t - S_{t-1}$$

$$R_H = (S_t - S_{t-1}) - h\,(F_t - F_{t-1})$$ The variance of an unhedged [Var (U)] and the variance of a hedged [Var (H)] portfolio can be expressed as

$$\text{Var(U)} = \sigma_S^2$$

$$\text{Var(H)} = \sigma_S^2 + h^2\sigma_F^2 - 2h\,Cov_{S,F}$$

Where,

S_t and S_{t-1} are the spot prices at time *t* and *t-1* respectively

F_t and F_{t-1} are the futures prices at time *t* and *t-1* respectively

$Cov_{S,F}$ is the covariance of the spot and the future price

The hedging effectiveness (*E*) can be expressed as

$$E = \frac{Var(U) - Var(H)}{Var(U)}$$

More the value of '*E*' more would be the effectiveness of hedging for the commodity concerned and vice versa.

ANALYSIS AND FINDINGS

Analysis

Commodity futures market in India is of around two decades old, serving the nation with its best possible capacity to ensure a transparent and efficient platform for all the stakeholders. Considering the commodities traded, the market has four segments namely, agriculture, base-metal, precious-metal and energy commodities. In this study, the focus would be to explore the market with respect to the agricultural commodities so as to get an idea as to how the farmers and the persons associated with agriculture are able to manage their risk and profitability by incorporating futures trading in their activities. It is an established fact that futures trading has a significant role to play in managing risk and return. Indian commodity futures markets provide a wide variety of agricultural commodities to participants to enter into futures contracts. Exploring the Multi Commodity Exchange (MCX) in respect of agricultural commodities, the following Table has been prepared:

TABLE 1.1:

AGRICULTURAL COMMODITIES TRADED ALONG WITH THEIR LATEST CONTRACT EXPIRY DATE IN MCX

Commodities	Latest Contract Expiry Date		Commodities	Latest Contract Expiry Date
ALMOND	29 June 2013		KAPAS	28 April 2023

ARECAJHAJI	15 June 2009		MAIZE	20 December 2012
BARLEY	20 June 2012		MASUR	20 May 2008
BSMATIRICE	15 March 2007		MENTHAOIL	30 September 2022
CARDAMOM	13 Aug 2021		MUSTRDSEED	20 April 2007
CASHEWKERN	15 June 2009		PEPPER	19 March 2021
CASTORDISA	31 December 2005		POTATO	30 September 2014
CASTOROIL	14 June 2008		REDCHILLI	15 June 2009
CASTORSEED	19 March 2021		REFSOYOIL	15 June 2013
CHANA	20 April 2009		RICBRNROIL	15 June 2006
CHANADEL	20 June 2012		RICE	15 January 2007
COCONUTCAK	14 June 2008		RUBBER	30 August 2022
COCONUTOIL	14 June 2008		SESAMESEED	15 June 2009
COFROB (Coffee Robusta)	30 June 2009		SOYABEAN	18 March 2012
CORIANDER	15 December 2012		SRBATIRICE	15 June 2007
COTTON	30 August 2022		SUGARM	19 June 2009
CPO	29 April 2022		TURMERIC	20 December 2010
GUARGUM	19 December 2014		WHEAT	20 December 2012
JEERA	15 June 2009		YELLOWPEAS	18 December 2009
JUTE	31 October 2009			

Data Source: *Compiled from the website of MCX by the Researcher*

Interpretation of Table 1.1

The Multi Commodity Exchange (MCX) in India, as shown in the above Table, offers a wide range of agricultural commodities for futures trading. But a number of commodities are discontinued and only eight agricultural commodities, as highlighted in the Table above, have been seen to be offered for futures trading during the period of study. One of the reasons may be the reluctance on the part of the participants to seek the exposure in the futures market for risk-return analysis. The other reason could be the unawareness of the farmers and others associated with agriculture regarding the futures trading mechanism to combat adverse price movements. These challenges must be considered as the opportunities from the point of view of the regulators and proper initiatives must be taken to spread the awareness and education relating to the futures trading of commodities among the prospective stakeholders.

As the study is confined to the period of pandemic, the agricultural commodities remaining active in the MCX during the said period only, have been considered for computing the hedge ratio and hedging effectiveness so as to provide a detailed understanding regarding the management of cost and profitability.

TABLE 1.2:

HEDGE RATIO(S) OF THE AGRICULTURAL COMMODITIES

Commodity	Standard Deviation of Spot Price (σ_S)	Standard Deviation of Futures Price (σ_F)	Correlation Coefficient between Spot and Futures Prices ($\rho_{S,F}$)	Hedge Ratio (h)
CARDAMOM	373.94	126.75	0.591743	1.745766
RUBBER	862.85	851.79	0.952894	0.965265
CASTORSEED	334.12	256.86	0.825244	1.073483
COTTON	7002.21	7024.41	0.996147	0.992998

CPO	225.28	217.37	0.992804	1.028933
MENTHAOIL	62.32	68.18	0.930533	0.850568
KAPAS	346.25	301.87	0.935239	1.072735
PEPPER	1150.29	716.38	-0.516101	-0.828700

Data Source: *Computed by the Researcher from data available in the website of MCX*

Interpretation of Table 1.2

Hedge ratio indicates the size of the opposite position one has to take with respect to the position in the spot market so that the benefit of hedging can be availed. Considering the example of Cardamom, if one person is exposed to 10,000 units in the spot market, he/she has to take the opposite position of 17,458 units in the futures market to avail of the benefit of hedging. As per the above table, Rubber, Cotton and Mentha oil have provided the opportunity of hedging by lesser quantity of opposite position in the futures market whereas Cardamom, Castorseed, CPO and Kapas required more amount of opposite position in the futures market than the spot market. Pepper, having a negative hedge ratio, indicates the absence of hedging benefit during the period of study.

TABLE 1.3:

HEDGING EFFECTIVENESS OF THE AGRICULTURAL COMMODITIES

Commodity	Variance of Unhedged Portfolio [Var(U)]	Variance of Hedged Portfolio [Var(H)]	Hedging Effectiveness [E]
CARDAMOM	139834.30	90869.97	0.35016
RUBBER	744501.90	68489.37	0.908006
CASTORSEED	111635.70	35608.77	0.681027
COTTON	49030945.00	377150.20	0.992308
CPO	50751.06	727.75	0.98566
MENTHAOIL	3883.96	520.87	0.865892
KAPAS	119891.90	15025.74	0.874673
PEPPER	1323160.04	970722.82	0.266360

Data Source: *Computed by the Researcher from data available in the website of MCX*

Interpretation of Table 1.3

Hedging effectiveness is the indicator of success of hedging considering both the hedged and unhedged portfolios of spot and futures contracts of the commodity concerned. Higher the ratio greater is the effectiveness. In the above table, Rubber, Cotton and CPO are showing effectiveness of hedging over 90 per cent and as regard the poor effectiveness, the Cardamom and Pepper are showing less than 40 per cent effectiveness. Now comparing with the results of the previous Table of hedge ratio, the Cardamom shows a high hedge ratio which is not optimum as higher exposure in the futures market requires higher contract price. On the other hand, a negative hedge ratio is undesirable as it does not provide hedging benefit at all. The PEPPER, therefore, shows a very poor hedging effectiveness.

Findings

In order to assess the contribution of the futures market in management of cost and profitability in respect of agricultural commodities, the Multi Commodity Exchange (MCX) has been explored in the study for the period starting from 1st April 2020 to 31st March 2022. The following findings may be reported from the analysis:

- The MCX has the capacity of providing a platform of futures trading for a wide variety of agricultural commodities.
- A considerable number of commodities have been discontinued in respect of agricultural segment.
- The reason may be the reluctance or unawareness of farmers and persons associated with agriculture towards the benefits of futures trading.
- Except for very few commodities, the rest of the commodities, continued in trading, are providing benefits of hedging which would facilitate the management of cost and profitability.
- An important finding, worth reporting, may be the availability of data relating to spot and the futures prices in the website of MCX which is likely to

During the pandemic only eight agricultural commodities were made available by the MCX for futures trading

facilitate the analyst and market participants for their risk-return analysis.

CONCLUSION & RECOMMENDATIONS

Conclusion

COVID-19 Pandemic created an unusual situation of medical and economic emergency across the globe. India, naturally, was not out of its preview. Among all the sectors, the agricultural sector was under tremendous threat. This study has been conducted to examine the viability of futures trading in respect of agricultural commodities towards minimisation of risk through hedging which, in turn, has an important role to play in management of cost and profitability. In the process of analysis, it has been found out that a large number of agricultural commodities are discontinued in the MCX for futures trading which were previously made available to the market participants. During the pandemic only eight agricultural commodities were made available by the MCX for futures trading. Computing the hedge ratio and determining the hedging effectiveness, it was found that two out of eight agricultural commodities could not provide benefits of hedging whereas the remaining six commodities provided hedging benefits. The study reported that the spreading of awareness and education relating to futures trading would improve the present scenario and likely to provide benefit of hedging which, in turn, would facilitate the management of cost and profitability to farmers and the persons associated with agriculture.

Recommendations

After exploring the MCX for examining the viability of the futures trading in respect of agricultural commodities, following recommendations are made:

- An initiative must be taken to spread the awareness for the futures trading of agricultural commodities among the farmers and persons associated with agriculture.
- Initiative is also required to be taken for spreading education by arranging mock transactions by simulating live market environments.
- Incorporation of more agricultural commodities in the futures trading would serve a wide range of farmers in their cost management and profitability analysis.
- The simultaneous co-existence of spot and the futures market is the optimum situation for risk and return management. Establishment of an organised spot market for the commodities similar to that of the futures market is essential.

LIMITATIONS OF THE STUDY

The following limitations of the study must be mentioned so as to open the scope of further research:

- Other segments of commodities such as the base-metal, precious-metal and energy commodity may be compared with the futures trading of agricultural commodities for better reporting.
- Long time horizon for the study incorporating more frequent data points can produce better results.
- Like the futures market, the option market is also likely to play a crucial role in risk-return analysis which may be incorporated in the study for better understanding. MA

References:

Journals

1. *Namita Rajput, N.; Kakkar, R. & Batra, G. (2013), "Futures Trading and Its Impact on Volatility of Indian Stock Market", Asian Journal of Finance & Accounting, ISSN 1946-052X, Vol. 5, No. 1*
2. *Okolie, C. C & Ogundeji, A. A. (2022), "Effect of COVID-19 on agricultural production and food security: A scientometric analysis", HUMANITIES AND SOCIAL SCIENCES COMMUNICATIONS, (https://doi.org/10.1057/s41599-022-01080-0)*
3. *Pani, U.; Gherghina, T. C.; Mata, M. N.; Ferrão, J. A. & Mata, P. N. (2022), "Does Indian Commodity Futures Markets Exhibit Price Discovery? An Empirical Analysis", Hindawi, Discrete Dynamics in Nature and Society, Volume 2022, Article ID 6431403, (https://doi.org/10.1155/2022/6431403)*
4. *Rout, B. S.; Das, N. M. & Rao, K. C. (2021), "Competence and efficacy of commodity futures market: Dissection of price discovery, volatility, and hedging", IIMB Management Review 33, 146–155*
5. *Tripathy, N. (2011), "Hedge Ratio and Hedging Efficiency: Evidence from Indian Derivative Market.", Journal of Applied Research in Finance, Volume III/ Issue 1(5), Summer 2011*

Websites

1. *www.mcxindia.com*
2. *www.ncdex.com*
3. *www.sebi.gov.in*

Books

1. *Chandra, P. (2008), "Investment Analysis and Portfolio Management", Tata McGraw-Hill*
2. *Hull, J. C. (2009), "Introduction to Futures & Options Markets", Pearson*
3. *Kishore, R. M (2008), "Financial Management", Taxman*

DIGITAL TRANSFORMATION WITH DIGITAL ASSETS - TOKENISATION AND MANAGEMENT BY TECHNOLOGY DRIVEN PROCESSES

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Introduction

A fusion of definitions of assets provided by different economists reveals that an asset is a store of value, owned by an individual, a firm, or a government entity. Such assets can generate more values or be converted into another form of asset that also can fetch value from market, e. g., inventory of raw materials. The new value so created can be measured in tangible and/or subjectively judged in intangible terms. Some definitions also cover a group of assets which can jointly generate values like a manufacturing plant. In accounting parlance such a combination is known as a cash generating unit (CGU).

It is easy to appreciate those assets which yield values that are measurable in tangible terms, e. g., the sale value of a product of nay nature produced by one or a group of machines. An example of a physical asset yielding intangible benefits could be a laptop computer used by a person for day-to-day work, the output of which may not be possible to be measured in terms of money in most situations. Even a thermometer for measuring human body temperature can also be considered as an asset, albeit of a smaller tangible value for selling. However, the benefit it renders by its ability to read temperature that helps a doctor to diagnose ailment and decide about the course of treatment cannot be measured.

The economic definition of an asset provides the conceptual framework for financial accountants to define assets of further two more categories, viz., intangible assets and financial assets. Intangible assets comprise of the non-physical group of assets which has abilities to create value. For example, registered patent rights granted for innovations, invention or 'innoventions', e. g., medical drugs, product designs, new metal alloys, software, etc. which give a person or a firm exclusive right for generating saleable products or render services by using the right without being imitated by others. But a painting, created

Image Source:
https://www.sappience.digital/2020/08/15/digital-asset-management-7-imperative-lessons-of-the-digital-transformation/

by an artist of eminence, cannot be sold to more than one person if he wants to monetise it and essentially to be sold through a traditional auction type process.

A financial asset is that store of value(s) for an identified person or a firm, which are legally defined and valid documents. This gives right to receive cashflows at predefined points of time as incomes and/or realisation of dues/principal sum that was initially invested or lent by the owner to acquire those financial rights. Cases in point are equity shares, bonds, debentures, units of a mutual fund, receivables against sales, etc. In the new age digital economy, the question that needs to be addressed is whether any creative work of an artist can be converted to a store of value and an thus an investible asset. Or whether the owner of a large real estate can partly monetise its value without physically parting with it.

There are different institutional frameworks, popularly known as valuation standards, promulgated by legally recognised institutions, lay down globally and nationally acceptable methods for determining values of all these types of assets. Accounting standards also provide guidelines to categorise such assets into further two groups viz., current, and non-current in terms of period of holding, and suggest methods for valuation, accounting, and reporting.

Readers by now must have become impatient, and rightly so, with such a long introduction on assets. However, they might have guessed that in the light of the above narratives, one would be able to understand and appreciate the emerging group of new asset class called 'Digital Assets' (DA). The present Industry 4.0 era has so far twice been devasted by black swan like events, viz., global financial crisis of 2008 and Covid-19 pandemic which accelerated the pace in applications of digital technologies by blooming of startups, soonicorns and unicorns. Both traditional and non-traditional business entities across industry sectors are continuously being disrupted, 'destrupted' and 'bizrupted' by innoventive applications of eight deep digital technologies.

People are also being made to live life in a different way remaining under the influence and drawing help from internet driven and digital technology-based devices like smart phones, Apps, IoTs, IoBs, and so on. If that be so, why it should not be possible to solve problems of those talented professionals whose creations are not protected, monetised for the financial value it deserves and made available for wider ownership? Why not also give general investors bouquets of 'Digital Assets' (DA) with options for large and small values?

Objective

Zillions of bites have by now been consumed in cyberspace by digital scientists, digital evangelists, commentators, crypto-enthusiasts, finance, and investment professionals while writing about DAs and non-fungible tokens (NFTs). Research and study of a few of those writings reveals that there is a perceptible emerging trend in creating, offering and adoption of DAs and NFTs by investors in new age digital economy. This paper has been written with the major objective of bringing out various aspects of these two groups of assets so that one can get some fundamental knowledge or bridge gaps in that, if there be any. This will be done in the context of emerging ecosystem collectively comprising of digital technologies, tokenisation process, markets for digital assets, directional guidance of regulators, and so on. It would also briefly narrate some projections about size of investments and likely number of investors in next about four years at global level for digital assets.

Digital Assets – Definition and Demystification

The simple way to define a digital asset is to borrow the features of an asset from the above orthodox definition of an asset and then superimpose the enabling features attributed by digital technologies. Hence the definition can be, crafted as a store of value which is created, acquired, stored, allocated, transferred transcending any geographical and even sovereign boundaries, administered, valued, and finally encashed against fiat currency by digitally designed systems and processes. According to Gartner Glossary[1] "*A digital asset is anything that is stored digitally and is uniquely identifiable that organizations can use to realize value. Examples of digital assets include documents, audio, videos, logos, slide presentations, spread sheets and websites".*

Professor Wufl A Kaal[2], has defined digital Assets with both broad and narrow perspectives. "*Narrowly construed, digital assets are instantiated through computer code and depend on so-called consensus computer algorithms to trigger and validate a transaction… Broadly construed, digital assets can include virtual assets such as video games …. Digital assets cover all types of virtual and electronic assets, …. including cryptocurrencies, …. virtual assets, virtual collectibles ….."*

Digital assets as a theoretical phenomenon came to public knowledge when Satoshi Nakamoto published his white paper on peer-to-peer network for electronic cash system in 2008, albeit the controversial issues of his identity are remaining unresolved. His primary objective was to liberate currency management from the clutches of central regulatory agency of any country. It came to reality immediately in the next year when he and his team implemented the same using blockchain technology for Bitcoin, which is a tokenised store of value yet not backed by any

guarantee or collateral. The rest is history now. Readers may know about it from the author's paper published under this column in February 2021 on cryptocurrency and central bank digital currency[3].

It would be useful here to study the definition of DAs as contained in the newly introduced section 47(A) under the Income Tax Act, 1961 of India by the Finance Act 2022-23. This new section, before defining a DA has added the word virtual and recognised it as a VDA or a virtual digital asset. This is rightly so because such an asset can never exist in any physical form whatsoever. The definition of VDAs has been provided in an inclusive manner which can effectively be analysed into the following components of features of a VDA:

- VDAs are categories of virtual digital assets, viz., any information or code or number or token which is not an Indian or a foreign fiat currency,
- The condition attached is that such assets must have to be "generated through cryptographic means or otherwise by whatever name called",
- The VDA so generated must provide a "digital representation of value exchanged with or without consideration",
- There must be a guarantee or a demonstration of a VDA having an innate value or it must have the attributes of a store of value or a unit which can facilitate exchange of ownership in the form of a financial transaction and accounting thereof, and
- It should be possible to store, trade and transfer VDAs electronically.

The above definition of VDAs has further been widened by adding two more points, viz.:

- The definition of a VDA will not remain limited to any investment scheme, and
- It would include non-fungible tokens (NFT) or any other token of similar nature,

The Act has kept the horizon open expandable by empowering the Central Government of India to declare any other asset in digital form as a VDA which might have not been covered by the above definitional attributes of a VDA or can be excluded from the clutch of this definition of a VDA

Readers may first discount some of the typical and legal adages that has been added to this definition with the objective to enable the government to ensure that there is no loss of revenue that can be charged and collected from dealings on VDAs. Having done that, readers would get from the above a wide-open definition of digital assets and their characteristic features which are not different from any other type of assets narrated in the introduction. The following is an example of a set of DAs in the form of digital contents which are used for websites, business communications, marketing campaigns, etc for an entity and cannot be imitated by anybody else. Lately jingles and musical tunes are also included as copyrightable digital assets.

Source: https://openasset.com/blog/what-are-digital-assets/

Therefore, DAs can be based on anything ranging from a painting to a video, sculpture, music, song, etc. and even physical assets Such assets are unique, one of its kind and not replaceable. The ownerships of such DAs are recorded and stored in a digital ledger called Blockchain which essentially is a decentralised technology providing trust, transparency, safety, and security. Owners of DAs do not own or possess anything in physical form. A shareholder of any listed company also does not own or possess anything in physical form and receives a soft statement of his holdings and values at periodical intervals from the designated custodian. The differentiating feature of this from a DA is that records for equity shares are not maintained in a P2P network created and maintained using blockchain technology. Moreover, shares are traded in compliance with the related regulations of the Securities and Exchange Board of India (SEBI). Whereas in India there is no regulator for DAs yet.

Tokenisation of Assets

The above definitions of digital assets have included non-fungible tokens (NFTs) under digital assets group. It would, therefore, be useful to know more about NFTs. But

before that it would be helpful to reinforce understanding about what a token means and what tokenisation is. Oxford dictionary has provided two meanings of the word token, viz., *"A thing serving as a visible or tangible representation of a fact, quality, feeling etc."*, and *"A word or object conferring authority on or serving to authenticate the speaker or holder"*. These two meanings can aptly be considered as essential attributes of any Digital Asset. Gartner Glossary[5] defines tokenisation as …. "*a process by which a piece of sensitive data, such as a credit card number, is replaced by a surrogate value known as a token. The sensitive data still generally needs to be stored securely at one centralized location for subsequent reference and requires strong protections around it……*"

Tokenisation is generally of two types, viz., frontend and backend. Frontend tokenisation takes place when a service provider creates the taken of any sensitive information even before commencing service delivery through any internet based digital platform. Whereas backend tokenisation takes place when the token is created by any system only in the event there is a need for sharing any sensitive information. Providing an Aadhaar Card to every citizen by the Unique Identification Authority of India is an example of frontend tokenisation[6]. It has introduced *"…. two services for the Aadhaar unique ID system: (a) Virtual ID, and (b) UID token and limited KYC. Both features use tokenization to enhance the privacy and protection of Aadhaar holders' personal data*."

In a simplistic sense, therefore, tokenisation is nothing but substitution of a sensitive or a set of sensitive information by an insensitive identifier that cannot be manipulated or duplicated with a mala fide intention because it does not have any extrinsic or gullible description. The question that will arise now how tokenisation is done for an asset which can be exchanged and/or traded?

Hereda[6], one of the leaders in blockchain technology, has defined asset tokenisation as "… *the process by which an issuer creates digital tokens on a distributed ledger or blockchain, which represent either digital or physical assets. Blockchain guarantees that once you buy tokens representing an asset, no single authority can erase or change your ownership"*. Therefore, again on a simplistic sense, asset tokenisation is nothing but fractionalisation of an asset into smallest units. Each unit represents a fractional part of the underlying asset's intrinsic value, which can in course of time increase or decrease due to market dynamics or any other reasons.

For example, let it be assumed that there is an excellent artwork, say a painting, by a famous artist of global eminence, and he wants to monetise it. But he does not want to part with it because he expects its price to increase further. He fixes its price at INR 100 lakh keeping in view that the highest price bided for it in a recently held exhibition was INR. 95 lakh. He can approach a blockchain platform-based tokenisation service provider for creating 10 L tokens for the artwork with each token priced at INR. 10. He can then allow 50% those tokens to be traded through a token exchange for parting with 50% of its ownership to others retaining the balance with him. Each token thus become a Digital Asset representing a fractional value of the physical asset. Anybody from public can buy one or more tokens. In course of time when those tokens are traded, in the exchange the price of each token are likely to increase keeping in view the artistic value and rarity of that creation.

Source: https://www.insights.sygnum.com/post/crypto-primer-what-are-cryptocurrencies

The above picture graphically presents the landscape of tokenised assets of existing economy vis-à-vis the DAs of the new economy. The acronym STO on the bottom red block means security token offering like ICO meaning

initial coin offering. Newspaper reports reveal that certain startups in Europe are working on creating digital assets based on immoveable real estate assets like land, building, commercial premises, roads bridges, etc. This will enable small investors to invest and participate in sharing value appreciations of such assets. They would also have options for splitting their investible surplus into several DAs like investors for equity share market.

Non-fungible Tokens

The joined word non-fungible has been defined by the Oxford Dictionary as something which is not replaceable by another identical item, or which is not mutually interchangeable with another item. Any fiat currency note is a token in the light of the meaning of the word token as stated in the previous section. But one INR 100 currency note, or a USD 10 bill are not non-fungible tokens. Because one such INR 100 currency note can be replaced by two INR 50 currency notes and one USD 10 bill can be replaced by two USD 5 bills. Readers might be aware that currency notes in the USA are termed as bills. Moreover, these currency notes are not administered through a Blockchain platform, and their exchange values guaranteed by the respective sovereign nation. Again, on a cross currency mode a USD 10 bill can also be replaced by INR currency notes representing equivalent value.

Extending the above meaning of the phrase 'non fungible' a Non-fungible Token (NFT) as a digital asset can characteristically be defined as a digital unit maintained, administered, and traded through a blockchain platform which identifies and represents the fractional ownership of a specific physical or digital asset, i. e., a store of value and cannot be replaced by any other token because the underlying store of values cannot be replaced by any other asset. Essentially each NFT contains a digital identity by way of a digital signature which signifies its specific recognition and makes it tradeable only in the Blockchain platform which as offered it. Such a feature precludes this token to be replaced by any other token.

Therefore, pervasive understanding of a Digital Asset, the process of tokenisation, and features of a non-fungible token suggests that cryptocurrencies like Bitcoin or Ethereum are not NFTs as one can be replaced by equivalent market value of the other. Again, none of these represents a specific tangible, intangible, or a digital asset. However, the aforesaid example of one fractionalised unit of a specific artwork or a real estate property are typical examples of NFTs because the same cannot the replaced by any other token as there cannot be another token for the same artwork. Similarly, NFTs can be created for an intellectual property (IP). The registered creator and right holder of an IP while approaching for monetisation of his IP right through NFTs may provide license for full and or a limited part of his right to be monetised. Readers can know more about NFTs by visiting the webpage https://www.gq.com/story/what-is-an-nft.

Smart Technology for Smart DAs and NFTs - Blockchain

The world has already witnessed many successes in cerebral applications of Blockchain technology with distributed data storage management system (DDSM) by integration of cloud computing and edge computing. Blockchain has proved its potentials to be the powerhouse of Industry 4.0 era and a foundational technology for transforming economic and societal foundations of any country. Readers would recall writings on all these from the author's previous papers under this column.

Blockchain technology has already proved that it believes only in one version of truth and can establish that this truth can be trusted by everyone because the technology is immutable, auditable on online basis with evidence stored in its digital library. It protects all data and transactional details by encrypting those with complex algorithms for cryptography. Cybercriminals would need a computer with supersonic speed to penetrate any blockchain based platform for hacking and demanding ransomware, because of its distributed storage system and unique applications of algorithms for encryption, which are extremely difficult to crack if not impossible

All DAs and NFTs have so far been created, maintained, and offered through blockchain platforms. This author is of strong conviction that blockchain is the smartest technology mankind has so far seen and experienced. Therefore, it can help proliferation of digital assets with all possible safety, security, and transparency, yet with ease of access and transactional operations.

Regulatory Scenario for DAs and NFTs

Reserve bank of India on May 18, 2020 has issued a set of Guidelines[7] in the form of answers on frequently asked questions (FAQs) on tokens and tokenisation, which readers would find useful. Other than this and the newly inserted Section 47(A) of Income Tax Act 1961, the author does not have knowledge about any concrete regulatory promulgations regarding DAs and NFTs in India so far, albeit governments and regulatory authorities are actively working on the subject. Forbes[9] has reported that certain countries of Europe, like Switzerland and Germany have become more agile in creating friendly regulatory environment in their country for proliferation of this new-age investment options in DAs and NFTs. They have already introduced several laws and regulations in recent past with the

objective to build a solid foundation for proliferation of digital assets.

The US Congress has mandated the Securities Exchange Commission to regulate a range of assets as securities including DAs and NFTs. Interestingly various stakeholders of that country expect that their Courts of Law take into consideration realities and imperatives of new age digital economy and the need for such investment products stepping beyond forms and giving importance to substance.

Source:https://cointelegraph.com/cryptocurrency-regulation-for-beginners/the-regulatory-considerations-of-nfts-in-the-united-states

But for regulators it would be a unique task to lay down regulations and monitor particularly keeping in view three types of digital assets namely Stablecoins, NFTs and Cryptocurrencies. Incidentally a Stablecoin is also a cryptocurrency that try to measure its market value linking with an external fiat currency like say USD. Readers can observe from the brief narratives provided in the above graphic that equivalent respective values of all the above three DAs in terms of fiat currency USD is the same at 500. Such a situation may arise in any country for any combination of different types of digital assets. The author would urge upon readers to visit the webpage of Cointelegraph, as quoted above, for more knowledge and information on the subject.

Reference can also be drawn from the promulgated 'New Rules on Issuance, Offering Platforms, and Custody of Digital Assets'[8] *by the* Securities Exchange Commission of Nigeria around the second week of May 2022 with the objective to regulate digital/virtual assets like Cryptocurrencies and NFTs. It has brought into the net digital players like DA Offering platforms, custodians, virtual assets service providers, and DA exchanges which forcefully targets investors of that country.

Thought leaders have not ruled out possibilities of fraud, falsification, money laundering and new avenues cybercriminal activities around DAs and NFTs, Blockchain technology, because of its many inherent strengths and capabilities, can provide enormous support for smart, safe, secured and transparent management of all digital assets but regulations are indispensable. It will take some more time for law makers and regulators of even developed countries to settle down with appropriate definitions of a DAs NFTs. Meanwhile innovators of the world, investors and other stakeholders are going ahead with these new groups of assets. Therefore, it would now be useful to take a briefly look at what all are happening in the global market for DAs and NFTs.

Global Marketplace for DAs and NFTs

The world of opportunities for DAs and NFTs are wide open and expanding almost every day as are reported though various media. Cryptocurrencies may finally establish itself as a risky asset class for investment instead of a widely adopted medium for settlement of transactions. DAs and NFTs seems to have a future to grow and stabilise in minds of investors as can be perceived from their entries into the mainstream and going trend of adoption. Roman Regelman, CEO of Asset Servicing and Head of Digital of Bank of New York Mellon Corporation[10] is of the view that *"Digital assets are transforming the world and becoming increasingly mainstream in our financial ecosystem. At BNY Mellon, we are committed to leveraging centuries of trust and innovation in order to build a bridge to the future."*

The website of BNY Mellon continues to write that, "*With the increasing relevance of digital assets clearly established, institutional demand for a global infrastructure to provide stability and safety is evident. Investors expect the same institutional level of service as in the traditional space.*" Possibilities may

not be ruled out that in course of time DAs and NFTs can even overtake cryptocurrencies as an asset class. However, such hypotheses would continue to remain for some year as subjects for further research, analyses, critical thinking, and regulators' nightmare. Much will depend upon further enrichment of technologies and capabilities and professional ethics of 'Digital Asset Managers' (DAMs) of future. It will be relevant to the context and worthwhile to note the following estimations and projections by Statista[11], a global market research organisation of eminence:

- Revenue earning from DAs in 2022: USD 41.0 Bln.
- Highest revenue on a worldwide comparison to be earned by the USA in 2022: USD 20.42 Bln.
- Average earning of each user's from DAs as a segment in 2022: USD 126.80
- CAGR of total revenue till 2026 would be 18.59% translating to a magnitude of USD 81.1 Bln.
- Number of participants in the DA segment by 2026 would be: 429.78 Mln.
- Increase in penetration of users to increase in 2026 as compared to 2022: From 4.3% to 5.5%.

The question that may be plaguing minds of netizens in India is what would happen in Indian DA and NFT spaces. Anaximander, the great Greek philosopher ".....postulated about the development of life from non-life and the evolutionary descent of man from animal. Charles Darwin simply brought something new to the old philosophy - a plausible mechanism called natural selection." India is at the cusp of such a Darwinian moment in the context of digital transformation. After decades of pervasive initial struggles India is fast transforming and evolving with all eight deep digital technologies. Indian startup ecosystem and congenial environment for entrepreneurship has helped achieving the pride of being the third largest home for Unicorns number of which has recently touched 100 and further being counted. Entrepreneurship is no longer considered to be a profession driven by only profit motive. Passion for innovation, zeal for solving problems of society and desire to share values thus generated with all stakeholders have replaced that.

India is rightly not being considered homogeneous as a country when compared to its peers in BRICS or any other developed nations. This is because of many of its capabilities and attributes which has once again been proved by quickly coming back to the track of growth after Covid-19 pandemic. Indians must prove Darwin right once again in matters of plausibly selecting India as the new drive engine for global economy through innovative applications of digital technologies. One such proof has already been manifested to the world though its profound success in FinTech combining financial and technological ecosystems. India would certainly move ahead reaping stellar dividends from its young demography, passionate young entrepreneurs, widespread ITC ecosystem with deep rural penetration, large base of about 2.8 million IT/ Digital systems developers, large number of netizens with eagerness to adopt and use technology, R&D efforts on 5G for telecommunication and so on. India has substantially advanced towards embarking on the journey for achieving Web 3.0, features of which has been presented in the following graphics.

Features of Web 3.0 in comparison to Web 1.0 and Web 2.0

	Web 1.0	Web 2.0	Web 3.0
INTERACTION	Read	Read-Write	Read-Write-Own
USER DATA	Cookies	3rd Party Controlled	Portable and Personal
MEDIUM	Static Text	Interactive Content	Virtual Economies
ORGANIZATION	Companies	Platforms	Communities
INFRASTRUCTURE	Personals Computers	Cloud & Mobile	Blockchain Cloud
CONTROL	Centralized	Centralized	Decentralized
AD-SPENT	Page Views	Cost Per Click	User Engagement

Source: Adopted from Grayscale Metaverse Research Report

Source:https://crosstower.com/wp-content/uploads/2021/12/Indias-1-Trillion-Digital-Asset-Opportunity.pdf

NITI Aayog has published 'Blockchain - The India Strategy' in January 2020 and MeitY of Government of India has published the 'National Strategy on Blockchain' in December 2021. RBI has already charted out its path and initiated action steps for introducing CBDR. Resounding success in FinTech holds huge promises for more success in Decentralised Finance (DeFi), CBDC and NFTs. Moreover, overall economic growth would help investors from large middleclass group in exploring and allocating a part of their investible surplus for investing in these emerging DAs and NFTs.

The author is, therefore, not surprised to note views of Crosstower[12] expressed in one of their reports of December 2021 that, "…. *A September 2021 report published by the National Association of Software and Services Companies (NASSCOM) found that the digital asset industry in India could add $184 billion of economic value by 2030 and that the industry could employ several hundred thousand people in India over the same period. While this is an impressive amount, we believe the opportunity is much larger, and estimate the economic value to be conservatively $1.1 trillion by 2032".*

Conclusion

It is perhaps difficult for any author to cover such a vast subject related to emerging investment options in this new age digital economy within the confines of a few pages of this column. Accounting and reporting of digital assets have also not been covered in this paper. The author is committed to write more on DAs and NFTs in his next attempt. Certain aspects of this subject deserve empirical research, e. g, preparedness of people in general to adopt DAs and NFTs as an asset class of choice, what percentage of their investible surplus they are ready to allocate for these assets, how far they know, believe, and can rely upon the capabilities of blockchain technology platforms for truthfully, safely and transparently dealing with such assets, etc.

Probably several research scholars may be working on this elsewhere in the world, which must be done in India also. It would be the pleasure and privilege of the author to participate in such research if some scholars come forward with a proposal. Meanwhile if this paper can bridge the gap, if there be any, in knowledge and appreciative understanding of readers of the subject, the author would consider his efforts have met success. MA

Bibliography and Webliography

All these websites have been accessed during May and the first week of June 2022.

1. *https://www.gartner.com/en/finance/glossary/digital-assets#:~:text=A%20digital%20asset%20is%20anything,slide%20presentations%2C%20spreadsheets%20and%20websites*
2. *Wufl A Kaal, Professor of Law, University of St. Thomas School of Law, Minneapolis, USA, 'Digital Asset Market Evolution'- https://jcl.law.uiowa.edu/sites/jcl.law.uiowa.edu/files/2021-08/Kaal_Final_Web_0.pdf*
3. *http://www.innoventionians.com/wp-content/uploads/2021/04/18th-Monthly-Article-on-Digital-Transformation-Blockchain-February-2021.pdf*
4. *https://files.caclub.in/wp-content/uploads/goi-notification-dt-30-03-2022-finance-act-2022-post-presidents-assent.pdf*
5. *https://www.gartner.com/en/information-technology/glossary/tokenization*
6. *https://hedera.com/learning/what-is-asset-tokenization*
7. *https://www.rbi.org.in/commonman/English/Scripts/FAQs.aspx?Id=2917*
8. *https://nairametrics.com/2022/05/13/nigerias-sec-issues-rules-to-govern-transactions-in-cryptocurrency-nft-other-digital-assets/*
9. *https://www.forbes.com/sites/philippsandner/2021/08/24/digital-assets-the-future-of-capital-markets/?sh=262c02756a57*
10. *https://www.bnymellon.com/us/en/insights/all-insights/digital-assets-from-fringe-to-future.html*
11. *https://www.statista.com/outlook/dmo/fintech/digital-assets/worldwide*
12. *https://crosstower.com/resources/reports/indias-1-trillion-digital-asset-opportunity/*

Congratulations!!!

CMA (Dr.) S. Kumararajan has been conferred the Ph.D Degree in Business Administration by Department of Management Studies, Madurai Kamaraj University under the guidance of Dr. A Velanganni Joseph (Main Guide), Professor, Head & Chairperson, Department of Youth Welfare Studies, School of Youth Empowerment, Madurai Kamaraj University, Madurai and Dr. V Chinniah (Co Guide), Professor & Head & Chairperson (Retd), Department of Management Studies, School of Business Studies, Madurai Kamaraj University, Madurai on the topic "A STUDY ON FUNDS MANAGEMENT OF SELECTED PUBLIC SECTOR BANKS IN INDIA".

We wish CMA (Dr.) S. Kumararajan the very best for all of his future endeavours.

HOW THE US REIGNS THE WORLD ON THE STRENGTH OF GREENBACK

Abstract

This article makes an effort to analyse how the US manoeuvred its way to make the US Dollar become the default Global Currency (or commonly known as Reserve Currency). The US dollar or the greenback still holds the position as the major Reserve Currency. But the launch of Euro had created a temporary threat to dollar's supremacy. Now with the rapid growth of China's economy the question that hovers in the minds of the people now is: Will the Yuan or Renminbi (RMB) pose the US Dollar a challenge and replace it as a Global Currency?

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Many have accused the United States for having run the biggest Ponzi scheme in the world by taking the advantage of the US Dollar or the greenback as the Reserve Currency.

PONZI SCHEME

In 1920s Charles Ponzi, an Italian by birth, had run an attractive scheme throughout the United States by promising very high returns on investments. The money that he collected had not been invested in any business or legitimate activity for a spectacular return. Instead, he played a simple trick by diverting new investors' money to make payments to earlier investors along with a huge return to gain the confidence of the common investors to fall in the trap. The scheme survived till there were more inflows of money than outflows and once there was a mismatch in the flows; the scheme had a natural death.

UNITED STATES *VERSUS* PONZI SCHEME

The comparison of the United States and its Treasury Department with the infamous Ponzi scheme is not the aim of this article. But an analogy of the two has some relevance as the US Government has been borrowing profusely year after year to finance its budgetary deficits by issuing treasury securities consisting of bills, notes, bonds, TIPS (Treasury inflation protected securities) and FRNS (floating rate note). As per data available in the public domain the national debt level of the United States or the amount of debt the Federal Government owes to the public and foreign Governments stood at a whopping $30 trillion in February, 2022 (Source: Statista).

BUDGETARY DEFICIT IN USA – IS IT DELIBERATE?

When there is more spending than earning of revenues, budget deficit occurs. But the Federal budget deficit is done consciously and intentionally because a section of the economists and the politicians in USA opines that the Government spending which helps create jobs and thereby allows people to spend more is very much essential to fuel the economic growth. In addition to that, the US Government, being one of the super powers, was in recent times engaged in prolonged wars in Iraq and Afghanistan to maintain regional peace which was threatened by the insurgent elements. A huge spending on the wars also puts pressure on the exchequer and creates a deficit in the budget.

A deficit in the budget can be managed either by increasing the sources of revenues including imposition of fresh taxes or by borrowing from the market with the help of issuance of treasury securities. But imposition of tax beyond a certain level goes against the principles of consumer driven economy which the US propagates. Therefore, the only alternative left is to borrow from the market. However, borrowing adds to the cost in the form of interest payment and moreover if the sovereign rating decreases, there may not be enough creditors to subscribe

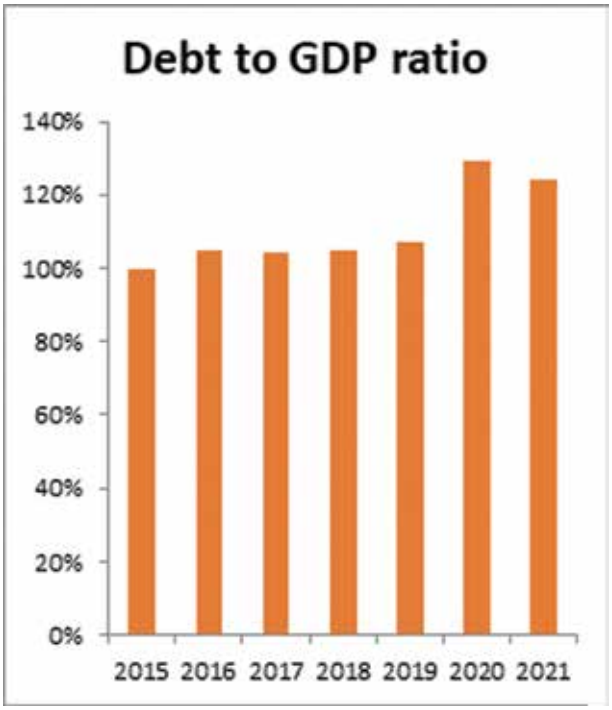
and even if some are there, they demand high interest due to possible default. Ultimately, the country enters into a debt trap and that is exactly what happened with Greece, considered to be one of the biggest defaulters of sovereign debt.

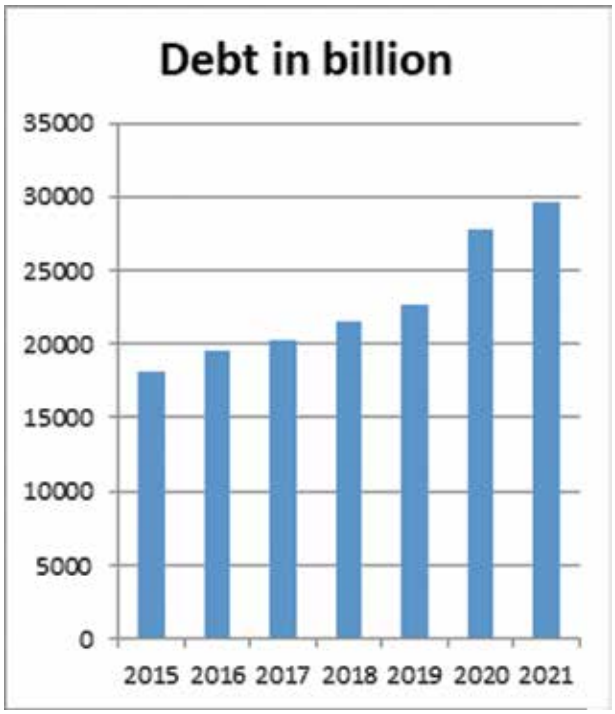
US STORY

The world knows that a high fiscal deficit caused by huge spending on wars, recession and other programmes, exists in the United States year after year and the deficit is being managed by raising debts from individuals, corporations, local Governments and foreign Governments. The national debt of US has reached to such a disproportionate level that it has even crossed the annual economic output of the entire country which is otherwise known as GDP.

Figures of US debt over the years

Year	*Debt in billion*	*Debt to GDP ratio*
2015	$ 18151	100%
2016	$ 19573	105%
2017	$ 20245	104%
2018	$ 21516	105%
2019	$ 22719	107%
2020	$ 27748	129%
2021	$ 29617	124%





Source: US National Debt by Year by Kimberly Amadeo updated February 03, 2022

The debt to GDP ratio basically indicates the capability of a country to pay back its debt. If this ratio is relatively high, it is certainly a matter of concern for the investors as there is a possibility of default. Even when this ratio hovers in the range of 124-129 per cent, USA manages to raise substantial debts year after year, the total of which has touched an all-time high of US $ 30.29 trillion in February, 2022 (Source: Statista). This has been possible due to the unique position of US dollar as the reserve currency. As long as the US dollar holds this position, central banks all over the world would continue to hold their maximum reserves in US bonds, bills and notes and as of now as per IMF estimates, the dollar's share in the global reserves stands at about 60 per cent followed by Euro holding the distant second position at 21 per cent.

US DOLLAR & BRETTON WOODS AGREEMENT- THE CORRELATION

After the devastation caused by World War II, the allied nations felt the necessity for creating an effective foreign exchange system which in addition to promoting international economic growth, could help stabilize exchange rate and arrest the devaluation of currencies. Keeping the above broad objective in mind, delegates from 44 developed countries assembled in Bretton Woods, New Hampshire and after a lot of deliberation agreed that instead of their currencies being linked to gold, they would now be pegged to dollar within 1 per cent band and the dollar was fixed to gold at $35 an ounce. At that point of time the United States had the distinction of holding the

Bretton Woods Agreement, had brought dollar into its current position and made it as the default Global Currency

largest gold reserves.

The above arrangement of converting other countries from gold standard to greenback, popularly coined as Bretton Woods Agreement, had brought dollar into its current position and made it as the default Global Currency. As per the agreement, it was the responsibility of the United States to keep the dollar price stable and maintain the steady supply of dollar to retain confidence in future gold convertibility.

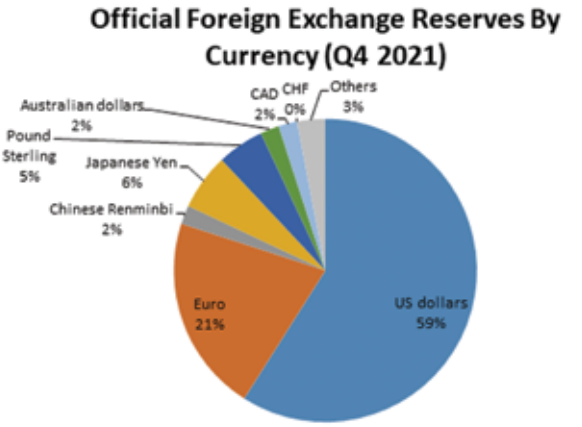
However, this system had a rough patch in 1960s. The spending on Vietnam War along with financing of deficit budget forced the US to issue more Treasury securities than the physical gold on hand. There being a question on the stability of dollar, the counties holding the paper securities rushed for converting the dollar reserves into gold. The demand for gold was so high that the US was not in a position in meeting its obligation of converting the paper securities into gold at the official price and President Nixon had no other option but to delink dollar from gold thus bringing the curtain down on the Bretton Woods system. The action of President Nixon had given birth to the floating exchange rate, a rate determined by supply and demand in the open markets and that is what exists in the present market.

US DOLLAR AFTER THE COLLAPSE OF THE BRETTON WOODS AGREEMENT

The Bretton Woods Agreement informally crowned the dollar as the reserve currency and the US became powerful and dominant in the world economy. But in 1970s after the dollar was delinked from gold and became a fiat currency it lost a little bit of its sheen. To regain the supremacy of the Dollar and thereby to continue its dominance all over the world, the US managed to strike a deal with the Saudi Arabia, reportedly the largest producer of the crude in the 1970s, to sell their outputs in USD. In return, the US agreed to provide Saudi Arabia the latest arsenals to make them a strong military power in the Middle East. Thus the *Petro Dollar* was born and thereafter all countries including USSR started trading oil in Dollars. The appeal and importance of dollar were restored and the US reigned supreme all over the world again particularly in the Middle East which is a storehouse of crude.

IS THE US DOLLAR ONLY RESERVE CURRENCY?

Many believe that the Dollar dominance continues as the US dollar is holding the undisputed position as the reserve currency of the world. But this is not true. The US Dollar, in fact, is no longer the world's reserve currency but the word's major reserve currency. As per the macroeconomic and financial data released by IMF in their official website and updated till 31.03.2022, the position of the reserves held is as follows:



Source: Currency Composition of Official Foreign Exchange Reserves (COFER) IMF eLibrary Data

WHY BULK OF THE RESERVES IS STILL IN US DOLLARS?

Since Euro's launch in 1999.the US Dollar's assets in central bank reserves all over the world has plummeted to 59 per cent from 71 per cent but still it remains the dominant reserve currency because of the certain privileges the US dollar enjoys. Few such advantages are delineated below

- US Dollar is a free floated currency the price of which is fairly stable and determined by market dynamics in stark contrast to Chinese Yuan or Renminbi (RMB) the price of which is determined by the State owned People's Bank of China (PBOC) and Russian currency which widely fluctuates with the prices of the oil.
- United Nations Member States acknowledge about 180 currencies as legal tender but in many of the countries the local currency is hardly in use. Considering the relative strength of the US economy and the purchasing power of the Dollar, few nations like El Salvador, Ecuador and Panama have already replaced their own currencies with US Dollar
- According to United States Federal Reserve report of February, 2022 currency in circulation was approximately $ 2232 billion and a sizable portion of that is being held outside the territory of the United States.
- When there is unbridled inflation, the nations tend to dollarize as the US Dollar is liquid, easily convertible in any other currency and is much more

powerful and reliable than the weak domestic currency.

- The political stability in the United States adds confidence in the minds of the investors
- US dollar is most accepted currency in the world trade and approximately in 90 per cent of the foreign trade, the dollar has a role to play and therefore the banks all over the world buy dollars to fund business requirements.

ATTEMPTS TO DETHRONE US DOLLARS AS MAJOR RESERVE CURRENCY

Against the backdrop of the Russia - Ukraine war and the subsequent sanctions by the US against Russia the debate has again resurfaced whether US dollar should continue as the major currency or not or its supremacy is to be curbed to a large extent by promoting another currency. But the big question is who is to take the lead. It is not true that the debate of replacing the US Dollar as the major reserve currency is of recent times. In fact in the year 1995, an econometric analysis brought home the view that there is a possibility of Euro replacing the Dollar as the major reserve currency by 2020 provided all the EU members including the UK adopt the euro by 2020.

With the launch of Euro in 1999 initially as an 'invisible' currency for the dual purposes of accounting and electronic payments there was a concerted effort to embrace the Euro as the major reserve currency. In 2002, coins and bank notes were launched and eEuro became the sole legal tender in 12 counties. But the Euro's journey was not very successful. Evn after two decades the Euro is not being used in all EU member countries. Only 19 out of the 27 EU members have accepted Euro so far and its use is largely confined in Euro area itself. Central banks all over the world hold about 21 per cent of Euro denominated securities. In fact other than German Government backed securities there are not much "safe" Government-backed Euro assets available in the market. European Central Bank or ECB's policies were broadly framed on the basis of the policies of the German Bundesbank and ECB could not achieve the credibility that was very much the need of the hour for the expansion of its international role. Euro's chance to become an alternative currency received a severe beating when the UK, following a public vote, formally left EU in January 2020.

ECB, instead of addressing the issues of the entire euro area largely confined itself in stabilizing the monetary issues of Germany but the FED and the US were successful in exhibiting a far more superior capacity for securitizing assets by banking on its robust and reliable regulatory system.

PRE-CONDITIONS TO BECOME A MAJOR RESERVE CURRENCY

To become the major reserve currency there are some pre-conditions which need to be fulfilled. Let us examine some of them

- When a currency becomes a major reserve currency there will be a huge demand for f that currency denominated securities by the Central Banks all over the world and thereby indicating more money flowing in and making the nation a net debtor to the world. Moreover, this debt would lead to payment of interest in the future.
- The counterpart of financial account surplus is current account deficit and the country which wants its currency to become major reserve currency must have the willingness to run perpetual current account deficits.
- The country must have a large bond market supported by Government backed securities.
- The currency must be very liquid, easily convertible and a free floating one.
- There must be a robust economic system and political stability.

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TRIFFIN DILEMMA

The demand of a particular currency strengthens the value of the currency and therefore the top exporting countries like Japan or Germany will not like their currencies to appreciate thereby causing exports to fall, dampen growth and employment prospects. The US on the other hand is the world's largest consumer market and there are more imports in US than exports which creates a perennial current account deficit. In fact the US is constrained to run a trade deficit for so many years for the obvious reason of US dollar being the major reserve currency. This is known as *Triffin dilemma*, a theory propagated by economist Mr Robert Triffin in the year 1960 which states that the country whose currency dominates the world as a major reserve currency has, in return, to run a current account deficit.

Japan is having large bond markets but they do not want their currencies to appreciate. It is difficult for Euro to take the lead as Germany is dependent on exports and they do not want the currency to appreciate too much for obvious reasons.

CHINA'S PROSPECTS

The country that appears to be in the fray is China. With GDP at US$ 17.70 trillion in 2021 (Source: Statista) China ranks second in the world economy and with its consistent annual growth it may as well become the largest economy in the years to come. China too has a large bond market.

China and Russia have already initiated steps for a non-Dollar oil market. China also proposes to issue gold – backed oil futures contract in Yuan. The idea behind all these steps is to curb the dominance of dollar in the oil market.

However to make the Yuan or Renminbi (RMB) as the world's next major Global Currency, China must make the free trade of Yuan, still pegged at a certain level by PBOC and take all steps to make the financial market transparent. China should also instil confidence in the minds of the central bank all over the world to ensure that they invest in the securities issued by PBOC and thereby increasing Chinese securities share in the world reserve basket from the present level of 2 per cent to a respectable level. Moreover, the political stability of the country and the freedom of press are to be ensured beyond doubt.

GREENBACK JOURNEY- HOW LONG?

The only currency which outweighs others and fulfils all the criteria of a reserve currency is US Dollar. It is to be considered that it is not only the size of the US economy but the transparency and stability of the US financial market that appeal to the investors. The liquidity of Dollar and its acceptability all over the world also remain as one of the prime reasons for the Dollar to hold its supremacy over the other currencies. Saudi Arabia pricing oil in Yuan and Russia forcing importers to pay for oil in Roubles may dent a part demand in Dollars. Even though China and Russia have taken initiative to issue gold backed oil futures, the Dollar is not going to pave the way to others soon since US is one of the major producers of oil and a lot of sale can still be billed in US Dollar.

Therefore, the decline of the green back as major reserve currency is not imminent even though a lot of arguments have already been made against the Dollar. The enormous trust and confidence that the investors have on the US economy and its commitment to pay back its debt would keep the Dollar afloat as the major currency for some more years to come. Even countries like China which is considered as the major protagonist to challenge Dollar's supremacy may not be interested in the decline of the Dollar as the major Reserve Currency. Otherwise what are they going to do with their trillions of Dollar in reserve as well as their future trade surplus? MA

References:

1. *Joseph W. Sullivan: Don't Discount the Dollar yet.*
2. *Kimberly Amadeo : How the Yuan could Become a Global Currency.*
3. *Linda Gorman: Why the Euro Hasn't Become an International Currency of Stature.*
4. *Richard Best: How the US Dollar Became the world's Reserve Currency.*

AN ANALYSIS OF A GUIDANCE FOR REPLACEMENT OF MACHINES

Abstract

An O.R. Tool suggests the period after which a machine has to be replaced to get a minimum "Annual Average Cost" (AAC). The AAC consists of investment and relevant running costs that change during the life of the machine. A simple version of the model is analysed in detail.

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INTRODUCTION:

In India, replacement of machines is usually delayed. Often, there is a confusion as to when to replace machines. The Machine Replacement Model suggests the time of replacement by considering all the relevant costs (that includes the investment cost) that change with the ageing of the machine. Late replacement of machines, results in higher average annual cost (AAC). Of many cases of a machine replacement, only the following few are discussed in this article.

a. Machine replacement of a similar machine at the same (purchased) price

b. A case considering the time value of money.

The first case is analysed in detail, to get the nuances of the machine-replacement model.

MACHINE REPLACEMENT MODEL.

The Machine replacement model considers a (total) cost that consists of: (a) investment cost(**P**), (b) Resale (**RS**) or scrap value of the machine, and (c)the running cost(**RC**). The AAC is calculated for any year" n" of the machine usage as:

[(P-RS) + (Cumu.Running Cost at the end of Yr-"n")]/"n

Situation-1: Machine Purchase Price (P) = Rs120, 000. Decision Horizon: 10 Years

a) (Re-sale Value (RSV): Reduction from the Purchase Price **(P)** at the year-end from Yr1 to Yr10 is given in percentage and shown against the values a.b.c…i.& j. RSV is an income and is shown as "negative expenses" in the tables. RSV is a function of "**P",** as higher the "**P**", higher will be the RSV.

TABLE-1 RESALE VALUE(RSV)

Yr-1	Yr-2	Yr-3	Yr-4	Yr-5	Yr-6	Yr-7	Yr-8	Yr-9	Yr-10
a=5	b=5.5	c=6.25	d=7.25	e=8.5	f=10	g=11.75	h=13.75	i=16.0	j=18.5
0.9500P	0.9450P	0.9375P	0.9275P	0.9150P	0.9000P	0.8825P	0.8625P	0.8400P	0.8150P

Row-3 shows the RSV in terms of**(P)**. Eg: For Yr-3:(1-0.0625)P=0.9375P. Note that, as the M/c machine , there is more reduction in RSV.

b) R&M cost (a function of "P"): The increase in R&M cost, from the Pr.Yr is in Row-2.

TABLE-2
REPAIRS & MAINTENANCE (R&M) COST: FOR YR1=0.01500P I.E.1.5% OF P

Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9	Yr10
0.00125P	0.00125P	0.00150P	0.00150P	0.00175P	0.00200P	0.00225P	0.00250P	0.00350P

0.01625P	0.01750P	0.01900P	0.02050P	0.02225P	0.02425P	0.02650P	0.02900P	0.03250P

The last row is the R&M cost for the year, after considering the increment shown in Row-2. Note the increase in the rate of increase in the cost. Eg:For Yr-3: Last Yr fig in last Row + increment in Row-2. =0.01625+0.00125=0.01750 .

(c) Other Costs like, power, maint. wages, defects, speed reduction etc. are "relevant costs", as they vary with ageing of the machine, but they are not function of "**P**". Hence only the absolute values are shown in the table below.

TABLE-3

THE OTHER COSTS (IN RS. 000S)

Yr-→	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Power	4	4	4	4	4	4.1	4.1	4.1	4.2	4.4
Maint.Wages	5	5	5	5	5	5.1	5.1	5.1	5.2	5.4
Q'lty&Others	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.7
Total	11.5	11.5	11.5	11.5	11.5	11.8	11.8	11.8	12.0	12.5

From the above details, one can decide the period after which the machine is to be replaced.

(d) The values of RSV and various costs are reproduced with more details in Tables-4&5 below.

TABLE-4

RE-SALE VALUE AND R&M COST PER MACHINE

Figs in (000s)

Year---->	**1**	**2**	**3**	**4**	**5-→**
Re sale Value %P (from Table-1)	0.9500	0.9450	0.9375	0.9275	0.9150
Resale (Rs)K for P=120K	114	113.4	112.5	111.3	109.8
R&M %of(P)[from Table-2]	0.015	0.01625	0.01750	0.0190	0.02050
R&M Rs(K) for P=120K	1.8	1.95	2.10	2.28	2.46
Year---->	**→6**	**7**	**8**	**9**	**10**
Re sale Value %P (From Table-1)	0.9	0.8825	0.8625	0.84	0.8150
Resale (Rs)K	108	105.9	103.5	100.8	97.8
R&M %of (P) [from Table-2]	0.02225	0.02425	0.02650	0.02900	0.03250
R&M Rs(K)	2.67	2.91	3.18	3.48	3.9

TABLE-5

DETAILS OF RUNNING COST

Figs in Rs.(000s)

Yr	**Power@**	**Maint.Wage@**	**R&M(*)**	**Q'lty & Others@**	**Total**
1	4	5	1.8	2.5	13.3
2	4	5	1.95	2.5	13.45
3	4	5	2.10	2.5	13.6
4	4	5	2.28	2.5	13.78
5	4	5	2.46	2.5	13.96
6	4.1	5.1	2.67	2.6	14.47
7	4.1	5.1	2.91	2.6	14.71
8	4.1	5.1	3.18	2.6	14.98
9	4.2	5.2	3.48	2.6	15.48
10	4.4	5.4	3.9	2.7	16.4

@Vide Table-3

* Vide Table-4-Row-5

TABLE-6

CALCULATIONS TO DETERMINE AAC.

For P=120K, RS is from Tab4 row3. Figs in(000s)

1	2	3	4	5=2+4	6=(5)/(1)	7=(Prev Row-Cur,Row) of Col.5	Remarks
Yr	**P-RS**	**Running Cost (Tab5)**	**Cumu.Running Cost**	**Total Cost(up to the year)**	**AAC**	**Tot.Cost for the Yr**	
1	6	13.3	13.3	19.3	19.3	19.3	See NB(1)
2	6.6	13.45	26.75	33.35	16.68	14.05	See NB(2)
3	7.5	13.6	40.35	47.85	15.95	14.50	See NB(3)
4	8.7	13.78	54.13	62.83	15.71	14.98	See NB(4)
5	**10.2**	**13.96**	**68.09**	**78.29**	**15.66**	15.46	See NB(5)
6	12	14.47	82.56	94.56	15.76	16.27	See NB(6)
7	14.1	14.71	97.27	111.37	15.91	16.81	
8	16.5	14.98	112.25	128.75	16.09	17.38	
9	19.2	15.48	127.73	146.93	16.33	18.18	
10	22.2	16.4	144.13	166.33	16.63	19.40	

The total cost for any year shown in Col-7, is obtained from Col-5. For example, the total cost for the Yr-4 =Total cost up to the end of the Yr-4 (i.e.62.83) less the total cost up to the end of Yr-3 (i.e.47.85) =14.98.

Note that**,** there is *no decrease* in all the costs, as the machine ages. The segregation of costs- dependent on (P) and not dependent on (P), is done to find the impact of the purchase price on the replacement decision.

The replacement rule is: "Replace the machine immediately after the end of the year at which AAC is minimum", which happens, "When the total cost for the next year is more than the AAC for the year**.** The rule will be clear on following the below mentioned notes.

Note (1): The next yr (Yr-2) total cost of Rs14.05K is < the AAC (Rs19.3K) up to the Cur.Yr.(i.e.Yr-1)

Note 2: The next yr (Yr-3) total cost14.50 is < the AAC(16.68) up to the Cur.Yr (i.e.Yr-2)

Note 3: The next yr (Yr-4) total cost 14.98 is < the AAC (15.95) up to the Cur.Yr. (I.e.Yr-3)

Note 4: The next yr (Yr-5) total cost 13.96 is < the AAC (15.71) up to the Cur.Yr. (I.e.Yr-4)

Note 5: The next yr (Tr-6) total cost 16.27 is > the AAC (15.66) up to the(Cur.Yr. (i.e.Yr-5).

Therefore replace the machine immediately after the end of Yr-5. Note the AAC is also minimum at the end of the Yr-5.Note the difference in the two costs (16.27 &15.66) =Rs 0.6K

Note 6: The next yr (Yr-7) total cost 16.81 is > the AAC (15.76) up to the Cur.Yr. (i.e.Yr-6).Note the increases in the difference between the two costs (16.81-15.76=) 1.05,

The differences for the other years are:

Yr-7= (17.38-15.91=) 1.47, Yr-8= (18.18-16.09=) 2.09. Yr-9= (19.4-16.33=) 3.07 and the trend goes on. Thus, after reaching the minimum AAC at the end of Yr-5, AAC continues to increase (in fact at a faster rate) as the year passes. Thus, the minimum AAC at the end of Yr-5 is unique. When the increase in the costs is erratic (i.e., sometimes decreasing, sometimes increasing) there will NOT be a unique minimum AAC.

The above suggestion for machine replacement indicates that the organisation, if it replaces the existing machine immediately after the end of Yr-5, with another (new) machine at the same purchase price (P) and incur the same RSV as well as the running costs(RC) as before and thereby, incur the same total cost, and if at the end of Yr-5,get the new machine replaced-in a similar manner, then, the AAC for every year, will be Rs15,660 or the total cost in the entire block of five years will be (5X15660)= Rs.78,290. The pattern repeats and an AAC of Rs15,660 p.a. is incurred perpetually. (If the time value of money is ignored).

WHAT HAPPENS IF THE REPLACEMENT IS NOT AS PER THE RECOMMENDATION

1. Suppose, the replacement is done after the end of the sixth year, the AAC for every year will be Rs. 15,760 which is >Rs.15,660 if replaced at the end of Yr-5. For a reference period of 30 years, when replaced at the end of 6th year, there will be five replacements- each with a cost of 6X15760=Rs 94,560 for a block of six years. The total cost for 30 years will be=5X94560=Rs.472,800. During the same 30 year-period, if the machine is replaced once in five years (as per the recommendation), there will be six replacements

and the total cost will be 6X78,290=Rs.469,740.Thus replacing once in six years results in higher cost of (472,800-469,740=)Rs3, 060 for every six years.

2. Suppose, the replacement is done immediately after the end of the seventh year, the AAC for every year will be Rs.15, 910(I.e. >Rs.15, 660 for the recommended year) or Rs 111,370 for a block of seven years. For a block period of 35 years, there will be five replacements each with a cost of Rs 111,370 for a block of seven years. The total cost for 35 years will be=5X111370=Rs.556, 850. During the same 35 years, if the machine is replaced once in five years, there will be seven replacements and the total cost will be 7X78,290=Rs.548,030. Thus replacing once in seven years results in higher total cost of (556,850-548,030=)Rs8, 820 for every 7 years. Thus, as and when the replacement is delayed, the average cost incurred every year increases. But this may not happen when there is random or illogical occurrence of the various costs. (A similar calculation, for the early replacement of the machine can be done, but usually the replacement is delayed). To check whether there is no reduction in the AAC after a rise in the AAC, the calculations should be continued at least for five more years from the first minimum AAC and should confirm the trend in the increase in the AAC.

PRICE ESCALATION EFFECT-SITUATION 1.

1. Replacement of a machine after some years at the same purchase price is unlikely in most cases, due to price escalation even for the same make of the machine. The higher purchase cost, changes the R&M and RSV(as they are dependent on the purchase price).But the "other running costs "are kept the same. The effect of higher purchase price on AAC of Rs140K,is shown in the following table.

   R&M cost for the 10 years:

   Rs2100, 2275, 2450, 2660, 2870, 3115, 3395, 3710, 4060 & 4550.

   RSV for the 10 years are:

   Rs(K)133,132.3,131.25,129.85,128.1,126.0,123.55,120.75, 117.6,&114.1

TABLE-7

CALCULATIONS TO FIND AAC WHEN THERE IS PRICE ESCALATION.

P=140K Figs in(000s)

1	2	3	4	5=2+4	6
Yr	**P-RS**	**Running Cost**	**Cumu.Running Cost**	**Total Cost**	**AAC=(5)/(1)**
1	7.00	13.600	13.600	20.600	20.6
2	7.70	13.775	27.375	35.075	17.538
3	8.75	13.950	41.325	50.075	16.692
4	10.15	14.160	55.485	65.635	16.409
5	**11.9**	**14.370**	**69.855**	**81.755**	**16.351**
6	14.0	14.915	84.770	98.770	16.462
7	16.45	15.195	99.965	116.415	16.631
8	19.25	15.510	115.475	134.725	16.841
9	22.4	16.060	131.535	153.935	17.104
10	25.9	17.050	148.585	174.485	17.449

(The new machine after installation should be replaced after five years)

2. The minimum AAC of the new machine is Rs.16, 351, indicating that higher replacement cost, increases the AAC. But, in this situation, the existing machine will not be replaced after the 5th year with a new machine for the reason given below.

3. Col-7 of Table-6 shows that the cost for Yr-6 is Rs16.27K and for Yr-7, it is Rs16. 81K. Therefore, there is no point in replacing the existing machine after the end of Yr-5 and incur every year, an average annual cost of Rs16.351K on the new machine with the same features. Further, for the existing machine, in the next year (Yr-7), the total cost is Rs16.81K, which is more than Rs16.351K of the new machine Therefore, after the end of Yr-6, the existing machine should be replaced with new machines of P=140K.

SITUATION-2. TIME VALUE OF MONEY

1. To get the time value of money, the present value of money to be spent or received in future is calculated. The present value of one Rupee spent after "n" years=(V_n) where V=1/(1+d) where, "d" is the discounting rate (or the interest rate) p.a. The decisive rule for machine replacement is," Replace the machine when [{P- (RS for the year(i)X(V) for the year" I")}+(Cumu.running cost for the year "i"X "V" for the year"i")]/ (Cumu. "V" for the Year"I") is minimum. The value of "I" indicates the year, which vary from 1 to "n". Here P=Purchase price and RS=Resale value. The running cost is assumed to be spent at the beginning of the year.
2. Consider the case as in Situation-1 but with some modifications.

   We get, for an interest or discount rate(d) of 5 per cent p.a, the discounting factor for different years as :V(i)=1/(1+d) and for d=0.05,the V(i) for the beginning of year 1 to 12 are: 1.000, 0.9524, 0.9070, 0.8638, 0.8227 ,0.7835, 0.7462, 0.7107, 0.6769, 0.6447, 0.6131, 0.5847.
3. Purchase price(P)=120K.For simplicity in calculation, RSV is taken to be zero for all the years.
4. The AAC as per this method will be less than the AAC of the earlier method. This is applicable for all the years. But, as we compare only the relative figures arrived from the same method, this method of calculation will NOT affect the decision on Replacement of a Machine.

TABLE-8
CALCULATIONS TO DETERMINE AAC

Figs in(000s)

1	2	3	4	5	6=(3)X(4)	7	8=(2)+(7)	9=(8)/(5)
Yr Begin	P-(RSi)	Running Cost R(i)	Disc Rate V(i)	Cumu V(i)	R(i) X V(i)	Cumu R(i).V(i)	[P-RS(i)]+ Cumu Ri,Vi	AAC=(8)/ Cumu.Vi
1	120	0	1	1	0	0	120	120
2	120	14	0.9524	1.9524	13.333	13.333	133.3333	68.29
3	120	15	0.9070	2.8594	13.605	26.9388	146.9388	51.39
4	120	16	0.8638	3.7232	13.821	40.7602	160.7602	43.18
5	120	18	0.8227	4.5459	14.804	55.5688	175.5688	38.62
6	120	20	0.7835	5.3294	15.617	71.2393	191.2393	35.88
7	120	22	0.7462	6.0756	16.417	87.6561	207.6561	34.18
8	120	25	0.7107	6.7863	17.767	105.4231	225.4231	33.22
9	120	28	0.6769	7.4632	18.952	124.3746	244.3746	32.74
10	**120**	**31**	**0.6447**	**8.1079**	**19.983**	**144.3575**	**264.3575**	**32.61**
11	120	35	0.6139	8.7217	21.487	165.8445	285.8445	32.77
12	120	39	0.5847	9.3064	22.802	188.6470	308.6470	33.17

Minimum AAC occurs in the beginning of Yr10 and therefore, the machine should be replaced in Year-10.

FACTS OF THE MODEL ON REPLACEMENT MACHINE

1. The Purchase price *minus* -RSV for any year, indicates the investment cost up to the year. In Situation-1, at the end of Yr-1, a resale value of Rs114K is realised; thus 120-114=6K is the cost of investment till the end of yr-1. At the end of Yr-2, a resale value of Rs113.4K is realised, thus 120-113.4=Rs 6.6K is the cost of investment till the end of Yr-2, i.e. the investment cost for the two years. The average investment cost p.a. at the end of two years= 6.6/2=Rs3.3K (p.a.) and so on for other years. The total cost shown in Col-6 indicates the investment cost up to the year plus the cumulative running cost incurred up to the year. When minimum AAC is reached in later years, the share of (P) in the AAC is < when minimum AAC is reached earlier.
2. The AAC for all the years will be low, if all the costs P & RC is low, and RSV is high. If (P) is high, then, the RSV will be high. The running cost should be low, to reduce the AAC. In addition, if the rise in the costs from RSV and RC, is less or if the increase is postponed to later years, then the increase in AAC can be postponed and thereby, minimum AAC can be obtained in later years.
3. *Running costs.* The Common running costs that change with the ageing are: (i) Wages of maintenance-team (often to handle more break downs), (ii) Power cost (that increase due to wear and tear of the machine, (

iii)R&M cost, that increases on ageing, (iv) Increase in defects and thus the revenue loss (taken as cost), (v) Reduction in the speed of the machines on ageing and thus the loss (taken as cost).

4. The R&M cost will be a small percentage of "P" in the initial years, but it increases over the years.

ANALYSIS OF AAC

1. What is important to note is that the rate of increase in the cost due to change in the RSV and RC, will never reduce. That is, the rate of increase, if it is say 5 per cent in the initial years i.e. when the machine is new, it cannot be less than 5 per cent when the machine is old.
2. Changes in the average value of (P) p.a:

   "P" is the one- time fixed expense incurred in the beginning of the Yr-1. For a given "P", the average value of (P)=P/No: of yrs cannot be changed. Thus, the drop in the average value over the years cannot also be changed. The drop is sharp initially (50 per cent of P in Yr-2), reduces every year and reaches the minimum at the end of the last year.
3. Drop in resale value:

   There will always be reduction in the RSV of the machine due to its ageing. As the RSV is considered as revenue, the decrease in the revenue may be taken as "increase in the cost".

   In the initial years, the drop in the average cost of "P" is more, and drop in the RSV is expected to be low. During the same (initial) period, the running costs are also low as the machine is new. For any year, if the sum of, (increase in the average RC p.a.) + (the increase in cost due to the average drop p.a. in the RS) is less than the reduction in the (average cost of "P"p.a,). then, there will be drop in AAC w.r.t. the previous year, otherwise not This happens without much effort, in the initial years. But, as years pass, the drop in the average cost of "P" p.a. becomes smaller, the drop in the RSV becomes larger and during the same period, the running cost also increases more due to the ageing of the machine. Thus, the drop in AAC is possible in later years, only when the drop in the RSV and the rise in the RC are very small years, which is very difficult when the machine is old.

CONDITIONS FOR THE AAC TO REDUCE W.R.T. THE PREVIOUS YEAR

1. RSV, R&M and other costs can increase above the prescribed limit and increase the AAC in the subsequent year. For a given "P", one can find, the maximum allowable increase in the R&M cost to ensure, no increase in the AAC in the subsequent year.

   Example: For AAC_2 to be less than AAC_1, calculations available with the author show that, when the R&M cost is less than 6 per cent of (P=120K) in Yr2, then, AAC_2 will be < AAC_1, otherwise not. *Check:* When R&M cost is 6.5 per cent of "P". R&M cost is (120*0.065=) Rs7.8K and the total cost is 11.5+7.8=Rs 19.3K.The cumulative running cost=13.3+19.3=Rs32.6K. where 13.3 is the cumulative running cost till the end of Yr-1. P-RS at the end of Yr2= Rs.6.6K. (vide Table-6). Then, the total cost will be=6.6+32.6=Rs39.2K and the AAC_2 will be =39.2/2=Rs19.6K (which is > the AAC_1 of Rs19.3K). The actual R&M cost in Yr2 was 1.625 per cent of (P) which is < the maximum allowed limit of 6 per cent and therefore the actual AAC_2(16.68) was <AAC_1. (19.3)
2. Take year 5 as yet another example. For the, AAC_5 to be less than AAC4.calculations available with the author show that, when the R&M cost is less than 2.256 per cent of (P) then, AAC_5 will be < AAC4;, otherwise not. Check: In the example R&M cost in Yr_5 was 2.05 of P. Therefore, AAC_5<AAC4. Suppose X=2.5 per cent (or)R&M=(120KX0.025=) RS3,000,(or) Total running cost=Rs11.5K+3K= Rs14,500. As AAC_5=[(P-RS_5)+CRC_4]/4=[120K-(0.9150*120K) +54,130 +14,500]/5=[78830]/5=15,766 which is>AAC_4(of Rs 15710). Rs54,130 is the CRC for Yr 4.
3. It may be noted that the permissible limit for increase in the R&M cost, reduces when the year passes. In Yr.1 it was 6 per cent, Yr-3=3.66(not shown above), Yr-5=2.256 and so on. But as years pass, the R&M cost increases. Due to the dwindling permissible limit in later years, unless the increase in the R&M cost is very much controlled, the AAC will increase, triggering an advice for replacement of the machine.

CONCLUSION

The use of machine replacement tool requires estimates many costs/ revenues like, cost equivalent of: (a) reduction in speed of the machine;(b) increase in defects; (c) increase in maintenance, staff; (d) Increase in power cost; (e) Increase in R&M cost and (f) Resale value for each year of the machine operation. It also assumes increase in cost/reduction in revenue, over the period of usage. The model is a useful tool in objectively deciding the replacement period. It also quantifies the additional cost, if replacement is not done, as per the suggestion. The model "Time Value of Money", is more relevant for all its practical applications. MA

Benevolent Fund

FOR THE MEMBERS OF THE INSTITUTE OF COST ACCOUNTANTS OF INDIA

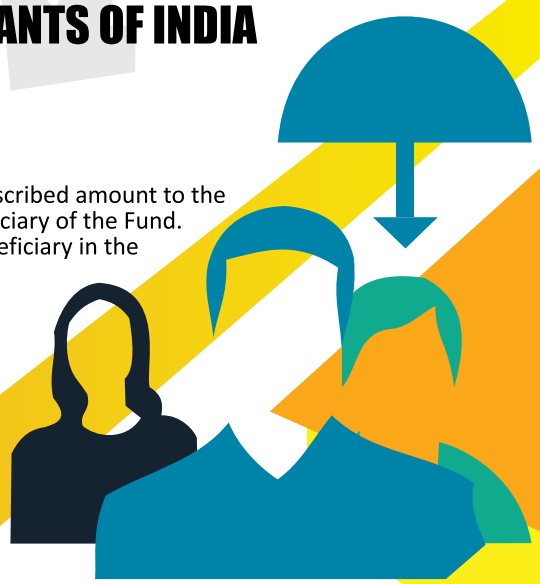
CMA Bhawan, 12 Sudder Street, Kolkata - 700016

OBJECTIVE

The Fund has been created to provide outright grant of prescribed amount to the member in the event of critical illness of a member / beneficiary of the Fund. It is also for outright grant of prescribed amount to the beneficiary in the event of death of a member of the Fund.

LIFE MEMBERSHIP FEE

Onetime payment of ₹7500/-



BENEFITS

- ***Income Tax Benefit under section 80G***
- ***Outright grant not exceeding ₹3,00,000.00/- in each case to the beneficiary in the event of death of the member.***
- ***Outright grant not exceeding ₹1,50,000.00/- in each case to the member and beneficiary for critical illness duly certified by the doctor under whom the treatment is continuing.***

Coverage of Critical Illness, leading to hospitalization, may cover the following -

- Cancer / Malignancy
- Coronary Artery Bypass Graft Surgery
- Stroke / Cerebral Attack / Paralysis
- Heart Valve Replacement Surgery
- Myocardial Infarction (heart attack) / Heart Failure / Pace Maker Surgery / Kidney Dialysis(CKD)/ Renal Failure
- Major Organ Transplant
- Hemophilia
- Thalassaemia
- Neurological Diseases
- Flue Blown acquired Immune Deficiency Syndrome
- Multiple sclerosis
- Tuberculosis / Bronchopneumonia/ Pleurisy
- Permanent disablement
- Any other disease that may be considered by the Board of Trustees to be critical in nature.

To apply for life membership or for further details please visit
https://eicmai.in/External/Home.aspx#

Tangible profits make biz sustainable

The Chairman of the USD 44-billion Aditya Birla Group also said that ultimately unit economics will have to matter.

Stressing that successful businesses are the ones which deliver tangible profits, billionaire Kumar Mangalam Birla said "trusty old concepts" like gross margins and cash flows will matter eventually even while valuations jump. The Chairman of the USD 44-billion Aditya Birla Group also said that ultimately unit economics will have to matter. His comments come against the backdrop of high valuations being enjoyed by businesses amid a liquidity glut wherein firms like Zomato and Paytm have successfully raised money from the public despite not reporting profits. Fund raising by companies at high valuations had led many to point out the lack of profits while those supporting the valuations are of the view that that it is the future potential which these businesses possess that should make someone overlook the conventional way of looking at a business.

Drawing from the diversified group's businesses, Birla said in the long run, sustainable and successful businesses are those that generate tangible profits, prosperity, livelihoods quarter after quarter. "Valuation and business longevity will automatically follow". "Ultimately, my own view is that at some stage unit economics will have to matter. And trusty old concepts like cash flows and gross margins will guide behavior and actions," he said.

In his New Year message to employees, Birla acknowledged a shift in business where enterprises have come to creating a need for consumers which never existed rather than delivering goods and services helping one meet a need, and cited the example of a 10-minute delivery app to support his observation. In the section titled 'Valuations: Sanity over vanity', Birla said competition for investment opportunities and the Fear Of Missing Out (FOMO) have driven up valuations of many fledgling companies to "stratospheric levels".

He said the large waves of cheap capital will eventually erode entry barriers faced by entrepreneurs and once a business becomes successful and starts delivering profits, valuation and business longevity will follow automatically. Mentioning about societal changes, Birla said hierarchies have ceased to be so important in the face of a 20-year-old building a billion-dollar business or a 50-year-old building a company in a new space. A generation of entrepreneurs are now taking advantage of the 1991 economic reforms, and with the twin balance sheet problem of stressed loans and over-leveraged corporates behind us, the next decade will be one of a surge in investments, Birla said, terming it as a "capital mahotsav" which awaits India.

The private sector is firing on the twin engines of conventional and the new-economy, Birla said, calling this as a 'double engine growth'. He, however, stressed that 'sunrise sectors' should be a wider phrase which should also include conventional industries like cement, steel, power and auto. The industrialist said "recent experience" has taught us not to declare victory or even the beginning of the end but hoped that the pandemic will become a far less virulent irritant in our daily lives in the new year. There is a renewed understanding on the importance of supply chains. While efficiency wins in the short term, resilience translates to value in the long term, he said. Near shoring, reasonable inventory holding, multiple supplier alternatives and more sophisticated supply chain solutions will be the changes one will see because of the realization, he said.

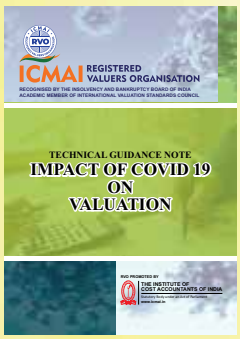
Valuations are temporary, values are forever

Startup founders should remember that valuations are temporary and values are forever, and they must focus on doing good and stay grounded, travel and hospitality technology platform OYO's Founder and Group CEO Ritesh Agarwal said. Commenting on India crossing the 100 unicorns mark, in a post on Twitter, he said it is "not just a milestone but a stepping stone that lays the path for the next 1,000 unicorns."

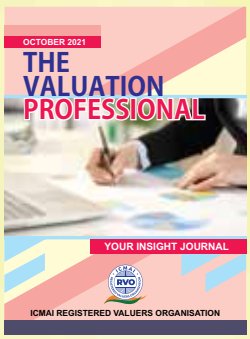
Agarwal said, I am bullish on Indian entrepreneurs taking the world by storm. Founders should remember that valuations are temporary, values are forever. Focus on doing good

& stay grounded. He said it seems like India is not walking anymore when only one or two unicorns were added a year. "We are now sprinting towards glory to make India the largest entrepreneurial ecosystem in the world," he said. He listed out the presence of entrepreneurs and markets in Tier II, III and IV towns in India; digitization of small and medium enterprises, and the support of the government led by Prime Minister Narendra Modi by creating the right ecosystem as key factors for the growth of startups in the country. Agarwal said there would be not just 100 but 1,000 unicorns coming out of India in the future.

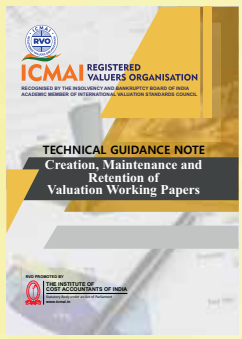
ICMAI Registered Valuers Organisation's Publications



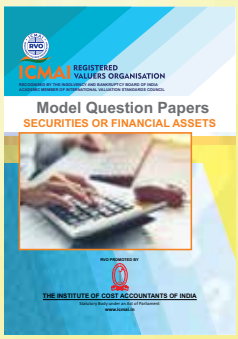
Technical Guidance Note
Impact of Covid 19 on Valuation



The Valuation Professional



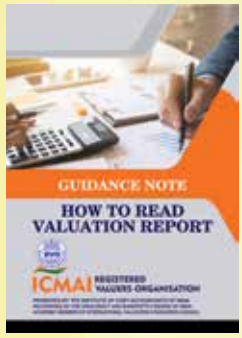
Technical Guidance Note
Creation Maintenance and Retention of Valuation Working Papers



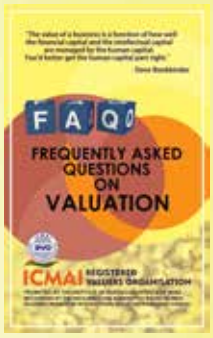
Model Question Papers
Securities or Financial Assets

Work Book
Securities or Financial Assets

The Compact Book of Valuation

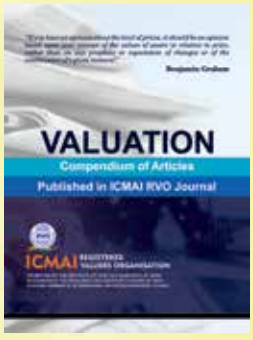


Guidance Note
How to Read Valuation Report



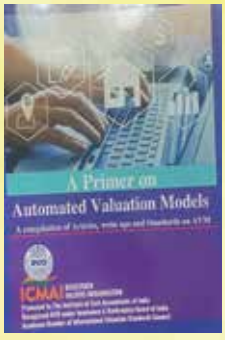
FAQ
Frequently Asked Questions on Valuation

Compendium of Perspective Papers



Compendium of Articles

International Valuation Standards



Automated Valuation Models

https://www.rvoicmai.in/publication

Down The Memory Lane

June 2012

Workshop on CARR & CAR 2011 being held at Bangalore on 23.06.2012. Seen from (L to R) Shri K. R. Murali Krishna, Chairman, BCCA; Shri Rakesh Singh, Vice President of the Institute; Shri B.B. Goyal, Advisor (Cost), MCA and Shri J.K. Puri, Past President.

Shri M. Gopalakrishnan, President of the Institute releasing the Book of Dr. T.P. Ghosh, Professor, IMT, Dubai on 'Illustrated Guide to Revised Schedule VI' 4th Edition at Srinagar an 12.06.2012. Also seen are Shri A. Om Prakash, Council Member and Dr. Mohi-ud-Din, Sangmi, Prof. Kashmir University.

June 2002

N. Rangaswamy, Chief Minister of Pondicherry receives the delegation of ICWAI Council Members. Seen from left S. Ramanathan, CCM & Past President; S. Ramesh, Chairman, SIRC; S. Gopalan, Secretary, SIRC and V. Gopalakrishnan.

Two-day workshop on Cost Audit on Motor Vehicle Industry at Lucknow. Seen from left on second day: Dr. Ashish Maheshari, Secretary of the Chapter; Chandra Wadhwa, CCM, P. K. Dutta, CMD Scooters India Ltd., C.S. Sunadaramurthy, Chairman of the chapter and S.N. Kiran.

Down The Memory Lane

June 1992

B.V. Adavi, Financial Advisor (Defence Services), inaugurating the four-week IDAS probationers' programme at ICWAI Bhawan. He is flanked by Shri P. D. Phadke, the then President, ICWAI; Shri B.G. Joshi, Controller General of Defence Accounts and Shri A.K. Ghosh, Director, NIMA.

ICWAI-IDAS Programme on Cost Accounting & Management Accounting. Sitting from left to right are: S/shri B.G. Joshi, CGDA; P.D. Phadke, Past President, ICWAI; Venkata Rayan, ACGDA; S. Ganapathisubrahmanian; S.A.Rahman, Director, NIMA.

June 1982

Prof. John O. Miller, A.O., President, Australian Society of Accountants, Director, Ministry of Consumer Affairs, Victoria, Australia delivering the 1st Basavaraju Memorial Lecture on the subject "The Professionalization of Accountants- An International Phenomenon" at Hyderabad on 21.06.82.

Seminar on Marketing Management and the Management Accountant on 23rd June'82 at Grand Hotel, Calcutta: Guest Speaker Prof. John O. Miller from Australia addressing the Seminar

Source: Extracted from the various issues of The Management Accountant Journal

www.icmai.in

GLOBAL RECOGNITION OF CMA QUALIFICATION

Benchmarking of Intermediate and Final Course of The Institute of Cost Accountants of India by UK NARIC*

With the objective of enhancing the recognition and professional opportunities for its students and members across the globe, the **International Affairs Committee** and **Professional Development & CPD Committee** of the Institute had engaged UK NARIC (National Recognition Information Centre in United Kingdom) to conduct an independent benchmarking study for evaluating the comparability of the CMA Intermediate and Final Course in the context of the UK and UAE education systems.

UK NARIC is the designated national agency in the United Kingdom for the recognition of international qualifications and professional skills. As the National Agency, managed on behalf of the UK Government, UK NARIC is the internationally respected voice in qualification recognition offering impartial, trusted judgement on international qualifications. UK NARIC has the largest database of international qualifications in the world, with over 5,000 qualifications from more than 200 countries.

UK NARIC has made the following comparability levels recommendations in the context of the UK & UAE education system:

Course	UK Qualifications	UAE Qualifications
CMA Intermediate Course	RQF Level 6 (Bachelor's Degree Standard)	QF Emirates Level 7 (Bachelor's Degree Standard)
CMA Final Course	RQF Level 7 (Master's Degree Standard)	QF Emirates Level 9 (Master's Degree Standard)

Link to the benchmarking results of CMA qualification published in UK NARIC website:
https://www.ecctis.com/news.aspx?NewsId=1138

This independent benchmarking of the CMA qualification would ensure widespread, international acceptance of CMA qualification. The benchmarking results would strengthen the position of CMA members and help corporates gain a better understanding on the relevance and standing of the CMA qualification. It would also provide opportunities for higher studies and enhanced professional opportunities for CMA members/ semi qualified professionals in UK, Middle East and other foreign jurisdictions accepting NARIC evaluation.

**Due to the United Kingdom leaving the European Union, the UK NARIC national recognition agency function was re-titled as UK ENIC on 1st March 2021, operated and managed by Ecctis Limited. From 1st March 2021, international benchmarking findings are published under the Ecctis name.*

THE INSTITUTE OF COST ACCOUNTANTS OF INDIA

Statutory Body under an Act of Parliament

Follow us on

Behind every successful business decision, there is always a CMA

NEWS FROM THE INSTITUTE

EASTERN INDIA REGIONAL COUNCIL

THE INSTITUTE OF COST ACCOUNTANTS OF INDIA BANKURA CHAPTER

The Chapter organized a Students' Awareness Program at MDB DAV Public School, Bankura that was held in two batches on 04/05/2022. CMA S. C. Samanta, Chairman & Principal and CMA N. Sinhamahapatra, Treasurer & Vice Principal of the Chapter attended the program alongwith Mrs. Jeeta Bhattacharya, Principal of the School, who honoured the Institute by her valuable speech and kind presence in both batches for more than 2 hours.

THE INSTITUTE OF COST ACCOUNTANTS OF INDIA SOUTH ODISHA CHAPTER

The Students Felicitation Ceremony for December, 2021 pass out students was organized by the Chapter on 24th April, 2022 at Chapter Conference Hall, Berhampur. Prof (Dr.) Gouri Sankar Lall, PG Department of Berhampur University was the Chief Guest, Dr Sachidananda Patro, Retd. Principal, Govt. Science College, Hinjilicut and Bhanja Bibhaga Pramukha, Vivekananda Kendra, Kanyakumari were the Guests of Honor. CMA Ashwini Kumar Patro, Chairman of the Chapter, CMA Rajkiran Padhi, Secretary of the Chapter and CMA Narasingha Chandra Kar, Chairman, Coaching Committee presented the certificates & mementos to semi qualified, qualified CMAs & rank holders of December 2021 examination of Berhampur Center. Late Indumati Proficiency award was awarded to Miss K Srima, who secured the highest marks in Cost & Operational Audit in December – 2021 session and Late Raghunath Memorial award was awarded to Miss K Saujanya, who secured the highest marks in Direct Tax in December, 2021 semester examination from this Chapter. The awards were sponsored by CMA Suresh Chandra Mohanty, Past President, ICAI and CMA Niranjan Mishra, CCM, ICAI in memory of their Mother and Father respectively.

NORTHERN INDIA REGIONAL COUNCIL

THE INSTITUTE OF COST ACCOUNTANTS OF INDIA JAIPUR CHAPTER

The Chapter organised Box Cricket Tournament for members and students on 23rd and 24th April 2022 at PlaySpace Cricket Ground, New Sanganer Road, Opp. Dhanwantri Hospital, Mansarovar. It was inaugurated on 23rd April 2022 by Shri D.C. Trivedi, Plant Head of Mahindra & Mahindra Ltd., Jaipur. CMA R.S. Bhati, Regional Council Member, NIRC was also present on this occasion. CMA S.L. Swami, Chairman, Jaipur Chapter welcomed the Chief Guest and all the participants including the players. Before the final match on 24th April, both the teams were introduced to Chief Guest, Shri Anandi Lal Vaishnav, Addl. Commissioner, Jaipur Development Authority. On completion of matches, Guest of Honour, Shri N.L. Jat, Chief Controller of Accounts, Rajasthan Rajya Vidyut Vitran Nigam Ltd. awarded the Trophy to the winning Team and mementos and certificates to Final Team members as well as to Best Performing Players. At the end of the program, CMA Rakesh Yadav, Chairman of organising committee proposed a vote of thanks.

The Chapter organised a campus placement programme at the Chapter premises on 14th May 2022 for students who qualified in CMA final exams held in December 2021. NAV Fund Administration Group mainly participated in this placement drive. CMA S.L. Swami, Chairman of

the Chapter welcomed the company's HR Head, Shri Loveleesh Rupani and Finance and HR Team members. CMA Sudarshan Nahar, Secretary, CMA Harendra Kumar Pareek, Executive member and CMA P.D. Agarwal, Director of Coaching were also present on this occasion. On 17th May, 2022, AU Small Finance Bank also participated in the campus placement. Before this, Head Office of the Institute organized Campus Placement at New Delhi, Mumbai, Kolkata, Chennai and Bangalore from 6th April 2022 to 27th April 2022.

SOUTHERN INDIA REGIONAL COUNCIL

THE INSTITUTE OF COST ACCOUNTANTS OF INDIA HYDERABAD CHAPTER

The Chapter organised a talk on "Mandatory use of accounting software with audit trail" on April 11, 2022 whereat CMA Divya Abhishek explained the recent amendments to the Companies Act 2013, Audit trail & Schedule III. The Chapter organised a programme on "Recent Changes in GST" on April 30, 2022. CA Apoorva Jayasimha enlightened the participants with her outstanding explanation and covered ITC Changes, E-Invoicing, Departmental audit etc in this programme.

THE INSTITUTE OF COST ACCOUNTANTS OF INDIA COCHIN CHAPTER

The Fifth Kerala State Cost Convention was held on 23rd April 2022 at Kochi. The programme was jointly organised by the Chapter, SIRC and other Chapters in Kerala. The convention was inaugurated by CMA P Raju Iyer, President of the Institute. In the inaugural ceremony, CMA Padmakumar V A, Chairman, Cochin Chapter welcomed the gathering. CMA Sankar P Panicker, Member, SIRC addressed the invitees and CMA Thomas T V, Secretary expressed vote of thanks. The theme of the Convention was Climate Change – Time to realign business. The convention started with the theme introduction by Mr. Saransh Bajpai, representing World Resource Institute, India. He gave a detailed insight of the risks involved in climate changes and its impact on the corporate sector. Ms. Suchitra Anil Menon - CEO, WFB Baird & Company (India) Pvt Ltd proficiently explained the risks on textile sector. Mr. Elias George, Retired IAS officer, Partner KPMG, National Head – Infrastructure, Government and Healthcare delivered a session on ESG (Environmental, Social, Governance). According to him, the introduction of Business Responsibility and Sustainability Report (BRSR) in May 2021 is a step towards tightening of regulatory framework. Mr. Kishore Rungta, Chairman & Managing Director, FACT Ltd delivered a detailed talk on the climate change impact on Agriculture / Fertilizer sector. Mr. N Mohan – Head – EVCI, Convergence Energy Services Ltd. (Subsidiary of ESSL) explained about the business models of sustainable energy. After the technical Sessions, a panel discussion was also conducted for easy understanding of the theme relating the same to practical scenarios. Mr. S. Suhas (IAS), MD, CIAL, CMA Sunil Chacko, MD, KSMDFC Ltd., CA Kumar K. R., Director Finance – KMRL were the panellists and CMA (Dr.) K. Sreekumar, Professor & Head, Department of Commerce, Jain Deemed to be University was the moderator. The importance of sustainable business models considering drivers of climate change was highlighted by all the speakers. The conference stressed the need of joint efforts required to be initiated by producers, manufacturers, consumers and Government to face the climate change. The convention concluded with the vote of thanks by CMA Renjini R, Chairperson, Professional Development Committee of the Chapter.

THE INSTITUTE OF COST ACCOUNTANTS OF INDIA MADURAI CHAPTER

The Chapter organized a Professional Development cum Members Meet with the President of the Institute on 04th May 2022 at Madurai. The programme was inaugurated with lighting of lamps, Tamil Thai Vazhthu and playing of Motto Song of the Institute. CMA R.K. Bapulal, Chairman of the Chapter welcomed the gathering. CMA S. Kumararajan, Vice Chairman of the Chapter honored the dignitaries. CMA P. Raju Iyer, President, ICAI, in his key note address, shared information about the latest developments in the profession, new opportunities opening up for the members and the various initiatives taken and being taken for these by the Institute. CMA Dr. Rakesh Shankar Ravisankar, Member, Internal Auditing & Assurance Standards Board, ICAI, Kolkata Special Speaker gave a detailed lecture with power point presentation on "Cost Audit Leads to Performance Appraisal". CMA R K Bapulal, briefly spoke about the need for exercising caution by the practicing professionals, including CMAs in practice, while certifying various documents to be attached while incorporating new companies and LLPs. The meeting concluded with a vote of thanks by CMA D. Kalaichelvan, Chairman, Dindigul Chapter and playing of National Anthem.

THE INSTITUTE OF COST ACCOUNTANTS OF INDIA BENGALURU CHAPTER

The Chapter conducted a seminar on "Cost Accounting Standards" at its premises on 23.04.2022. CMA G.N. Venkataraman, Insolvency Professional & Past President – ICAI, CMA Kumar H N – Chairman BCCA, CMA T.K.Jagannathan, Practicing Cost Accountant, CMA Girish K, Practicing Cost Accountant, CMA Jayaram A V – Secretary BCCA, CMA Satish R., Vice Chairman BCCA, CMA Raghavendra B.K., Treasurer BCCA, CMA Manjula B.S. – Chairperson PD, CMA Dr.Gurudath A.S., Chiraman Coaching, CMA Vishwanath Bhat, Vice Chairman – SIRC, CMA Vijayalakshmi K.R., Member, CMA Pranabandhu Dwibedy – Chairman - Practitioners' Forum, CMA Sreepada H.R – Member, CMA Ramaskanda N. Practicing Cost Accountant, CMA Prabhakar B.R., Practicing Cost Accountant were among the dignitaries and speakers who attended the seminar.

WESTERN INDIA REGIONAL COUNCIL

THE INSTITUTE OF COST ACCOUNTANTS OF INDIA AURANGABAD CHAPTER

The 21st National Para Swimming Championship was held at Udaipur, Rajasthan. CMA Nagarjunrao Akula,(Manager - Finance and Accounts) MAHATRANSCO (MSETCL) Aurangabad won the Silver and Bronze medals in both 100 meters events. CMA Kiran Kulkarni - Chairman, CMA Shailendra Singh Rajput, Vice Chairman, CMA Parag Rane, Secretary, CMA S J Deore, Treasurer, CMA A R Joshi, CMA Bisheshwar Sen CMA S R Pimple, CMA M R Pandit, CMA Suresh Bhangale, CMA Ramanand Modani, CMA R D Khandalkar, CMA S B Khadke, CMA D V Dabri and other Members and Students congratulated CMA Nagarjunrao Akula on his great achievement.

THE INSTITUTE OF COST ACCOUNTANTS OF INDIA PUNE CHAPTER

Sixth May every year is celebrated as International Management Accounting Day. The Institute decided to mark this occasion by holding a seminar on Management Accounting every year. The Institute earmarked the month of March 2022 as Corporate Law Month by holding numerous knowledge sharing seminars all across the India. To mark both the occasions of International Management Accounting

Day & Conclusion of Corporate Law Month, the Institute organized a two days seminar on 'Management Accounting and Summit on Corporate Laws' on 6th May & on 7th May 2022 at Yashwantrao Chavan Center, Nariman point, Mumbai. The seminar was helpful to CMAs in industry and practice, other professionals, business owners, executives from the industry, PSUs, MNCs, MSMEs, Banks, Insurance Sector, Academicians, Representatives of Government Departments & Students. ICAI-Pune Chapter's former Chairman & most senior member CMA D.V.Patwardhan and many other members and students participated in the seminar.

THE INSTITUTE OF COST ACCOUNTANTS OF INDIA AHMEDABAD CHAPTER

The Chapter organized CMA Round Table Discussion on The Key Competition on May 7, 2022 exclusively for students of the Foundation, Inter and Final courses. The Chapter organized a CMA Volley Ball tournament at Gujarat Vidyapith ground on 8th May 2022 in which eight teams were divided in two groups (Men) and two teams (Women.)

CMA Malhar Dalwadi, Chairman of the Chapter and CMA Kushal Desai, Chairman-Sports Committee inaugurated the tournament on 8th May 2022. CMA Ashish Bhavsar-Regional Council Member, CMA Malhar Dalwadi-Chairman, and CMA Kushal Desai-Chairman, Sports Committee were present at the conclusion of the tournament.

The Chapter organized Practitioner's Convention – Avenues & Challenges in CMA Practice on 14th & 15th May 2022 at Hotel Novotel, Ahmedabad. In the inaugural session, guest of honour, CMA Chandra Wadhwa-Past President, CMA Ashwin Dalwadi-CCM, CMA Ashish Bhavsar-RCM of WIRC, CMA Malhar Dalwadi, Chairman of Chapter, CMA Aparna Bhonde-Treasurer of Chapter and CMA Uttam Bhandari-PD Committee Chairman of Chapter were the dignitaries on dais. The inaugural speech was delivered by Chairman, CMA Malhar Dalwadi. CMA Chandra Wadhwa-Past President, CCM CMA Ashwin Dalwadi, RCM CMA Ashish Bhavsar gave speech on the opportunities in the area of practice.

The speaker, CMA B B Goyal, Advisor MARF & Ex. Addl. Chief Advisor (Cost), MOF, GOI delivered a lecture on PLI Scheme, Local Content Certification and Other Certification. CCM CMA Ashish Thatte spoke on the topic "Role of CMA – Companies Act 2013". CMA Mihir Vyas, Vice Chairman of Baroda Chapter felicitated CCM CMA Ashish Thatte with a bouquet and memento. CCM CMA Ashish Thatte delivered a talk on the theme of program. CMA Aniket Modi delivered a lecture and made a presentation on Direct Taxes : Return Filing, TDS / TCS filing / AIS & Taxation planning. Other speaker of the session, CMA Vandit Trivedi delivered lecture and made a presentation on Indirect Taxes : Return filing, 2B Vs 2 Reco, Value additions and Annual Return. CCM CMA Ashwin Dalwadi delivered a lecture and made a presentation on the topic "Practice as a Internal Auditor". CMA Dakshesh Choksi delivered a lecture and made a presentation on the topic Insolvency Professionals. CMA (Dr.) Marzun Jokhi, Dean faculty of Commerce, GLS University delivered a lecture and made a presentation on Forensic Auditor. Mr. B Raj Kumar – Ex.CEO – Indian Bank's Association delivered a lecture and made a presentation on the topic Practice in Banking, Financial & Insurance sector. CCM CMA Chittaranjan Chattopadhyay deliver a lecture and made a presentation on "Stock Audit", "Concurrent Audit" and "Financing". Dr. S. K. Gupta –MD, ICMAI RVO delivered a lecture and made a presentation on "Valuation – as a CMA" and "Valuation as Valuer Professional". The valedictory session was addressed by President CMA P Raju Iyer, CMA Hiranand Savlani-CFO, Astral Ltd., and Dr. Dharmesh Shah, Registrar GLS University.

The Technical cell of the Institute in association with ICAI-Ahmedabad Chapter organized a meeting on "Discussion Paper on Treatment of Interest & Finance Cost in Cost Statements" on 14th May 2022 at Ahmedabad. Practicing Members and members from Industry participated in the discussion. Chairman of the technical cell CMA Chandra Wadhwa, CCM CMA Ashwin Dalwadi and CMA B B Goyal lead the discussions. The Chapter organized COVID Booster Dose Vaccination

camp for their Members, Students and their relatives on 21st May 2022 at the Chapter premises.

During the month of May 2022, the Chapter carried out promotional activities for CMA course. As part of career counseling activity, Oral Coaching Committee Team members met principals of different schools, colleges, universities and owners of private classes and distributed pamphlets on course content.

The Chapter organized a campus placement for qualified CMAs of Dec'21 and previous three exams on April 21 and 22, 2022. Leading corporates of Ahmedabad took benefit of the campus placement for their requirement of CMAs. Six candidates were selected in various organizations with lucrative packages as follows:

- Evosys Global selected two candidates with Rs.5.5 Lakhs & 6 Lakhs package
- Intas Pharmaceuticals Ltd selected three candidates with Rs.4 Lakhs package
- Navkar Consultancy selected two candidates with Rs.4 Lakhs package

Care Ratings Ltd, Khimji Ramdas India Pvt. Ltd., Accelerated Growth Research & Delivery Center Pvt. Ltd. & Astral Limited shortlisted some candidates for further round of interviews with the top management.

THE INSTITUTE OF COST ACCOUNTANTS OF INDIA PIMPRI CHINCHWAD AKURDI CHAPTER

The Chapter organized a Career Counseling Programme for the students of Pratibha and MES's Arvind Telang College. The chapter conducted Career Counseling Program on 13th April 2022 for the students of Pratibha College of Arts, Science & Commerce College at Pimpri-Chinchwad. Prakash Nachnani, Head of Commerce Department welcomed the Chairman, CMA Dhananjay Kumar Vatsyayan and Speaker, CMA Ashish Deshmukh and all participants. CMA Dhananjay Kumar Vatsyayan shared his valuable thoughts and delivered a short lecture for the students on the topic 'Costing'. The Chapter conducted a Career Counseling Program on 20th April 2022 at MES's Dr. Arvind Telang College, Nigdi. Dr. D M Khune, Head of Commerce Department welcomed the guest speaker, CMA Ashish Deshmukh and participants. CMA Ashish Deshmukh gave a presentation on CMA Professional Course and guided the students about the course and briefed on the career opportunities in the Public Sector, Service Sector and Government Sector. The Chapter conducted a webinar jointly with WIRC of ICAI on Strategic Cost Management' on 16th April 2022 through Google Digital platform. CMA Bhavesh Marolia, Secretary of the Chapter welcomed and introduced the speaker CMA Dhananay Kumar Vatsyayan, Chairman – PCA Chapter. CMA D K Vatsyayan in his speech dealt with the definition of Strategic Cost Management and its objectives. A question-answer session was also conducted. There was overwhelming response from practicing members, members from the industries, professionals and students. The Chapter conducted a webinar on 'Blockchain Technology and Management Accountants' on 23rd April 2022 through Google Digital platform. CMA Sagar Malpure, P D Committee Chairman of the Chapter welcomed and introduced the speaker CMA CA CS V Guruprasad. CMA Guruprasad in his speech highlighted the definition of Blockchain. The Chapter organized a Students Felicitation Function on April 30, 2022 at Acharya Atre Sabhagrah, Pimpri, Pune. CMA Tripti Patwa, Member of ICAI – Pimpri-Chinchwad-Akurdi Chapter welcomed dignitaries on the dais, Chief Guest CMA Brij Mohan Sharma, Past

President – ICAI, CMA Gopal Bhutada, Supply Chain Head of Tata Motors Ltd, Pune, Guest of Honor CMA L D Pawar, Past Chairman – WIRC of ICAI, CMA Mahendra Bhombe, Secretary & Treasurer, WIRC of ICAI, CMA Dhananjay Kumar Vatsyayan, Chairman, CMA Pradeep Deshpande, Vice-Chairman, CMA Bhavesh Marolia, Secretary of the Chapter and CMA Ashish Deshmukh, Past Chairman, of the Chapter. CMA Dhananjay Kumar Vatsyayan who gave the welcome speech congratulated all the successful students of the Chapter and highlighted the growth of students admission during the last 4-5 years and focused on continuation of CEPs from last 2 years for all the members. CMA Mahendra Bhombe guided the students on leadership and communication skills. He also disclosed the future plans for campus placement for the students in PCMC area. CMA L D Pawar in his speech highlighted the history of foundation of the Chapter. CMA Gopal Bhutada said every student should practice for the interview before going in corporate sectors. CMA Brij Mohan Sharma in his address said that, economic activity is an essential part of life of every person. All successful students were awarded certificates by CMA Brij Mohan Sharma, CMA Gopal Bhutada, CMA L D Pawar, CMA Mahendra Bhombe, CMA Dhananjay Kumar Vatsyayan, CMA Pradeep Deshpande, CMA Bhavesh Marolia and CMA Ashish Deshmukh. The programme was compeered by CMA Tripti Patwa, CMA Lalitha Deepak, Ms. Simran Padhi, Mr. Anand Gaikwad and Ms. Shabnam Shaikh. The program ended with vote of thanks. The Chapter conducted a webinar on 'Decoding Cash – Business's Oxygen' on 14th May 2022 through Google Digital platform. Pradeep Deshpande, Vice-Chairman of the Chapter welcomed and introduced the speaker CMA Jaydev Mishra, General Manager, SKH SMC, Ranjangaon, Pune. The Chapter conducted webinar on 'Providing Visibility to Recording of related Transactions using Blockchain Technology by shifting from Double Entry to Triple Entry'' on 21st May 2022 through Google Digital platform. CMA Pradeep Deshpande, Vice-Chairman of the Chapter welcomed and introduced the speaker Dr. Hari Krishna Karri and Dr. Lina George. Dr. Karri in his address said that, Blockchain is a database technology used to record all transactions happening in a network. It is a distributed ledger system. Dr. Lina George in her address dealt with Double Entry to Triple Entry under Blockchain Technology.

THE INSTITUTE OF COST ACCOUNTANTS OF INDIA NAVI MUMBAI CHAPTER

The Chapter RCP - Ghansoli CEP Study Circle conducted a webinar CEP webinar on "Overview of Butyl Rubber Business" on 13th May 2022 via MS Teams. The speaker for this event was CA Pankaj Dadhich, CFO of JV with Sibur – Reliance Sibur Elastomers – settling up Butyl Rubber plant at Jamnagar. Ms. Pradnya Yelve representing the FC&A Academy of Reliance Industries Limited welcomed the audience and introduced the speaker.

The speaker then explained on "Overview of Butyl Rubber Business" i.e. the history and evolution of Isobutylene Rubbers, Synthetic Rubber invention, Butyl Rubber : World Capacities, Synthetic Rubber classification, Synthetic Rubber : Demand v/s Production , Global Butyl Capacities/OR & Consumption Overview, Business Drivers, Evolution of Transportation System, Invention of Wheel, Re-Invention of Wheel, Wheel & Tyre, etc.

The lucid presentation and the interactive session concluded with the vote of thanks proposed by Ms. Pradnya Yelve from the RIL FC&A Academy.

Congratulations!!!

CMA (Dr.) V. Thayalan has been conferred the Ph.D Degree, Faculty of Commerce presented by Hon'ble Governor of Tamil Nadu, Thiru R.N. Ravi, Chancellor, University of Madras in the presence of Thiru M.K.Stalin, Chief Minister of Tamil Nadu, Dr.K.Ponmudy, Minister for Higher Education, Government of Tamil Nadu, Prof. Dr. S.Gowri, Vice Chancellor, University of Madras and other dignitaries at the 164th Annual Convocation of University of Madras held on 16.05.2022

We wish CMA (Dr.) V.Thayalan the very best for all of his future endeavours.

DIRECT & INDIRECT TAX UPDATES - MAY 2022

DIRECT TAXES

- **Notification No. 49/2022 dated 5th May 2022**: In exercise of the powers conferred by the section 245Q read with section 295 of the Income-tax Act, 1961 (43 of 1961), the Central Board of Direct Taxes hereby makes the following rules further to amend Income-tax Rules, 1962. In the Income-tax Rules, 1962, (hereinafter referred to as the said rules), in rule 44E, (I) in sub-rule (1), the words "in quadruplicate" shall be omitted; (II) for sub-rule (2), the following sub-rule shall be substituted, namely:

  The application referred to in sub-rule (1), the verification appended thereto, the annexures to the said application and the statements and documents accompanying the annexures, shall be:

  in the case of an individual, a HUF, a Company, a firm, an association of persons, any other person: signed digitally, if it is required under these rules to furnish his return of income under digital signature, communicated through his registered e-mail address, in any other case.

- **Notification No. 50/2022 dated 6th May 2022:** In the Income-tax Rules, 1962 (hereinafter referred to as the principal rules), after rule 2DC, the following rule shall be inserted:

  2DCA. Computation of minimum investment and exempt income for the purposes of clause (23FE) of section 10 of the Act (1) For the purposes of clause (23FE) of section 10 of the Act, the percentages referred to in item (c), item (d) and item (e) of sub-clause (iii) and the exempt income referred to in the fourth, fifth and sixth proviso shall be calculated in accordance with this rule. The percentage referred to in item (c) of sub-clause (iii) of clause (23FE) of section 10 of the Act shall be calculated in the following manner,

  namely:- $\frac{(A+C+D) * 100}{B}$

  Where,- A = Aggregate of eligible investments, B= Aggregate of eligible investments, C = Aggregate of eligible investments, appearing in the balance sheet of the Alternative Investment Fund as on the last date of all the financial years starting from the financial year 2021-22 and ending on the financial year immediately preceding the relevant previous year, made in one or more domestic companies referred to in item (d) of sub-clause (iii) of clause (23FE) of section 10 of the Act, D = Aggregate of eligible investments appearing in the balance sheet of the Alternative Investment Fund as on the last date of all the financial years starting from the financial year 2021-22 and ending on the financial year immediately preceding the relevant previous year, made in one or more nonbanking financial companies referred to in item (e) of sub-clause (iii) of clause (23FE) of section 10 of the Act.

- **Notification No. 51/2022 dated 9th May 2022:** These rules may be called the Income-tax (Fourteenth Amendment) Rules, 2022. In the Income-tax Rules, 1962 in the APPENDIX-II, - (i) In FORM No. 3CF, (a) for row 6b, row 7, row 13, row 16, row 29 shall be substituted.

- **Notification No. 52/2022 dated 9th May 2022:** In exercise of the powers conferred by clause (i) of sub-rule (1), sub-rule (5) and sub-rule (6) of rule 2C, sub-rule (1), sub-rule (5) and sub-rule (6) of rule 5CA, clause (a) of sub-rule (1), sub-rule (5) and sub-rule (6) of rule 11AA and clause (i) of sub-rule (1), sub-rule (5) and sub-rule (6) of rule 17A of the Income tax Rules, 1962 the Central Board of Direct Taxes hereby amends the Notification Number 30 of 2021. In the said notification, in the opening paragraph, the words "and Commissioner of Income-tax (Exemption), Bengaluru" shall be omitted.

- **Notification No. 53/2022 dated 10th May 2022:** In exercise of the powers conferred by clause (vii) of sub-section (1), sub-section(6A) of section 139A, and clause (ab) of Explanation to the said section read with section 295 of the Income-tax Act, 1961 (43 of 1961), the Central Board of Direct Taxes hereby makes the following rules further to amend the Income-tax Rules, 1962. (a) in rule 114, in sub-rule (3), after clause (vi), the following clause shall be inserted, namely: "(vii) in the case of a person who intends to enter into the transaction prescribed under clause (vii) of sub-section (1) of section 139A, at least seven days before the date on which he intends to enter into the said transaction". After rule 114B, the following rule shall be inserted, namely: "114BA. Transactions for the purposes of clause (vii) of sub-section (1) of section 139A-- The following shall be the transactions for the purposes of clause (vii) of sub-section (1) of section 139A. After rule 114BA, as so inserted by the Income-tax (Fifteenth Amendment) Rules, 2022, the following rule shall be inserted after the expiry of sixty days from the date on which this notification is published in the Official Gazette, namely: "114BB. Transactions for the purposes of sub-section (6A) of section 139A and prescribed person for the purposes of clause (ab) of Explanation to section 139A."

- **Notification No. 54/2022 dated 27th May 2022:** In exercise of the powers conferred by sub-section

(2A) of section 274 of the Income-tax Act, 1961 (43 of 1961), the Central Government hereby makes the Scheme to amend the Faceless Penalty Scheme, 2021.

- **Notification No. 55/2022 dated 27th May 2022:** In exercise of the powers conferred by sub-section (2B) of section 274 of the Income-tax Act, 1961 (43 of 1961)(hereinafter referred to as "the Act") and in consequence to the amendments made in section 144B of the Act vide the Finance Act, 2022, for the purposes of giving effect to the Faceless Penalty (Amendment) Scheme, 2022 made under sub-section (2A) of section 274 of the Act, the Central Government hereby makes the amendments in the notification of the Government of India.
- **Notification No. 56/2022 dated 28th May 2022:** In exercise of powers conferred under sub-section (2) of section 143 of Income tax Act, 1961 (43 of 1961) (the Act) read with Rule 12E of the Income-tax Rules, 1962, and in supersession of Notification No. 25/20211F. No. 187/312020-ITA-I dated 31.03.2021 , the Central Board of Direct Taxes hereby authorises the Assistant Commissioner of lncome Tax/Deputy Commissioner of Income Tax (International Taxation), Circle -1(1)(1), Delhi to act as the ' Prescribed Income-tax Authority' for the purpose of issuance of notice under subsection (2) of section 143 of the Act.
- **Notification No. 57/2022 dated 31st May 2022:** In the Income-tax Rules, 1962, after rule 44F, the following rule shall be inserted, namely: "44FA. Form and manner of filing appeal to the High Court on ruling pronounced or order passed by the Board for Advance Rulings under sub-section (1) of section 245W.— The form and manner of filing appeal to the High Court under sub-section (1) of section 245W of the Act against a ruling pronounced or order passed by the Board for Advance Rulings by the assessee, or the Assessing Officer on the directions of the Principal Commissioner or Commissioner, shall be the same as provided in the applicable procedure laid down by the jurisdictional High Court for filing an appeal to the High Court."
- **Notification No. 58/2022 dated 31st May 2022:** In exercise of the powers conferred by clause (46) of section 10 of the Income-tax Act, 1961 (43 of 1961), the Central Government hereby notifies for the purposes of the said clause, 'National Biodiversity Authority' (PAN AAALN0331K), an Authority established under the Biological Diversity Act, 2002 (18 of 2003), in respect of the following specified income arising to that Authority:

  (a) amount received in the form of grant-in-aid from the Government of India; (b) benefit sharing fee and royalty received; (c) amount received in the form of application fees; and (d) interest earned on (a) to (c) above.

  This notification shall be effective subject to the conditions that National Biodiversity Authority, Chennai: (a) shall not engage in any commercial activity; (b) activities and the nature of the specified income shall remain unchanged throughout the financial years; and (c) shall file return of income in accordance with the provision of clause (g) of sub-section (4C) of section 139 of the Income-tax Act, 1961.
- **Circular No. 9 / 2022 dated 9th May 2022**: Guidelines under clause (23FE) of section 10 of the Income-tax Act, 1961. Further, the Finance Act also relaxed the condition requiring an AIF to have investment in eligible infrastructure entity.
- **Circular No. 10 / 2022 dated 17th May 2022:** Circular regarding use of functionality under section 206AB and 206CCA of the Income-tax Act, 1961.

INDIRECT TAXES

GST

- **Notification** No**. 05/2022 –Central Tax dated 17th May 2022**: In exercise of the powers conferred by sub-section (6) of section 39 of the Central Goods and Services Tax Act, 2017 (12 of 2017) read with sub-rule (1) of rule 61 of the Central Goods and Services Tax Rules, 2017, the Commissioner, on the recommendations of the Council, hereby extends the due date for furnishing the return in FORM GSTR-3B for the month of April, 2022 till the 24th day of May, 2022.
- **Notification No. 06/2022 –Central Tax dated 17th May 2022**: In exercise of the powers conferred by the first proviso to sub-rule (3) of rule 61 of the Central Goods and Services Tax Rules, 2017, the Commissioner, on the recommendations of the Council, hereby extends the due date for depositing the tax due under proviso to sub-section (7) of section 39 of the Central Goods and Services Tax Act, 2017 in FORM GST PMT-06 for the month of April, 2022 till the 27th day of May 2022.
- **Notification No. 07/2022 –Central Tax dated 26th May 2022:** In the said notification, after the fifth proviso, the following proviso shall be inserted, namely: Provided also that the late fee payable for delay in furnishing of FORM GSTR-4 for the Financial Year 2021-22 under section 47 of the said Act shall stand waived for the period from the 1stday of May, 2022 till the 30thday of June, 2022.

CUSTOMS

- **Notification No.25/2022-Customs dated 21st May,2022:** In exercise of the powers conferred by section 111 of Finance Act, 2018 (13 of 2018), read with sub-section (1) of section 25 of the Customs Act, 1962 (52 of 1962), the Central Government, being satisfied that it is necessary in the public interest so to do, hereby makes the further amendments in the notification of the Government of India in the Ministry of Finance (Department of Revenue), No.18/2019-Customs, dated the 6th July,2019. In the said notification, in the Table-(i) against Sl.No.1, for the entry in column (4), the entry "Rs.5 per litre" shall be substituted;(ii) against Sl.No.2, for the entry in column (4),the entry"Rs.2 per litre" shall be substituted.
- **Notification No.26/2022-Customs dated 21st May,2022:** Seeks to further amend notification No. 50/2017- Customs dated 30th June, 2017.
- **Notification No.27/2022-Customs dated 21st May,2022:** Seeks to further amend notification No. 11/2021- Customs dated 1 st February, 2021 to reduce duty on Anthracite/Coking Coal.
- **Notification No.28/2022-Customs dated 21st May,2022:** Seeks to amend Second Schedule of the Customs Tariff Act, 1975 to increase and levy Export duty.
- **Notification No.29/2022-Customs dated 21st May,2022:** Seeks to amend notification No. 27/2011 dated 1 st March, 2011 to increase export duty on certain goods.
- **Notification No.30/2022-Customs dated 24th May,2022:** Seeks to provide global Tariff Rate Quota (TRQ) of 20 LMT per FY to Crude Sunflower Oil and Crude Soyabean Oil for 2 years exempting from whole of BCD and AIDC.
- **Circular No 8/2022 dated 17th May 2022:** Enabling export of Bangladesh goods to India by rail in closed containers.

CENTRAL EXCISE

- **NotificationNo.02/2022-CentralExcise dated 21st May 2022**: n exercise of the powers conferred by section 112 of Finance Act, 2018 (13of2018),read with section 5A of the Central Excise Act,1944(1of1944)(here in after referred to as the Excise Act), the Central Government being satisfied that it is necessary in the public interest so to do ,hereby makes the following further amendments in the notification of the Government of India in the Ministry of Finance(Department of Revenue),No.04/2019-Central Excise, dated the 6thJuly, 2019. In the said notification , in the Table, -(i)against Sl.No.1,for the entry in column(4),the entry"Rs.5 per litre" shall be substituted;(ii)against Sl.No.2, for the entry in column(4),the entry "Rs.2 per litre" shall be substituted.

Sources: *incometax.gov.in, cbic.in*

The Institute of Cost Accountants of India

(Statutory Body under an Act of Parliament)

www.icmai.in

Advisory for Renewal of Certificate of Practice For 2022-23

The members of the Institute holding Certificate of Practice (CoP) having validity up to 31st March, 2022 are requested to comply with the following guidelines for renewal of their Certificate of Practice:

1. The following changes consequent to amendment of the Cost and Works Accountants Regulations, 1959 vide Notification dated 4th February, 2011 published in the Gazette of India may be noted:

    a. The validity of a Certificate of Practice (CoP) is for the period 1st April to 31st March every year unless it is cancelled under the provisions of the Cost and Works Accountants Act and Regulations, 1959 as amended.

    b. The Certificate of Practice issued shall automatically be renewed subject to submission of prescribed Form M-3 (duly filled in) and payment of renewal fee* and annual membership fee*.

    c. From the year 2011-12 onwards, letter for renewal Certificate of Practice is not being issued. However, the members concerned may download the renewal status from the Institute's website www.icmai.in.

    Link: https://eicmai.in/MMS/Login.aspx?mode=EU

2. It may please be noted that under Section 6 of the Cost and Works Accountants Act, 1959, **both the Annual Membership Fee* and Fee for Renewal of Certificate of Practice*** falls due on 1st April each year.

3. Special attention is invited to the fact that the validity of a Certificate of Practice expires on **31st March** each year unless it is renewed on or before the date of expiry in terms of the amended Regulation 10 of the Cost and Works Accountants Regulations, 1959. Hence, a member shall be required to renew his certificate of Practice within **31st March** every year.

4. **If the Certificate of Practice of a member is not renewed within 31st March, 2022, his/her status of CoP from 1st April 2022 till the date of renewal would be "Not Active".**

5. Subject to what has been mentioned in Sl. No. 3 & 4 above, a member can get his/her Certificate of Practice for 2022-23 renewed within **30th June, 2022.** If application for renewal of Certificate of Practice is made after 30th June, 2022, the member's Certificate of Practice for 2022-23 will not be renewed but will be considered as a case of restoration of Certificate of Practice till 31/03/2023. This restoration is applicable only to the CoP holders whose CoP is valid till 31/03/2022. For restoration of Certificate of Practice, he/she has to pay Rs.500/-* as restoration fee in addition to the **prescribed fees * along with duly filled in form 'M-3'.**

6. It may please be noted that mere payment of fees * alone will not be sufficient for renewal of Certificate of Practice. Application in prescribed Form M-3 is to be used for Renewal of Certificate of Practice duly filled in and signed is **mandatory.** The soft copy of prescribed Form M-3 for Renewal of Certificate of Practice can be downloaded from Institute's website www.icmai.in.

    Link: https://eicmai.in/external/PublicPages/WebsiteDisplay/PractitionersForms.aspx

7. The Institute has introduced a scheme of Continuing Education Programme (CEP) and the same is mandatory in accordance with provision to sub-regulation (1) of Regulation 10 of the Cost and Works Accountants Regulations, 1959, as amended, whereby no Certificate of Practice and renewal thereof shall be issued unless a member has undergone minimum number of hours of such training. The detailed guidelines in this connection are available on Institute's website www.icmai.in. Link: https://eicmai.in/external/PublicPages/WebsiteDisplay/docs/CEP_Guidelines_280520.pdf

8. For renewal and application of new CoP issued on and from 1st February, 2019, please refer to Notification **F. No. CWA/21/2019 dated 1st February, 2019 and subsequent corrigendum dated 8th March, 2019.**
Link: https://icmai.in/icmai/news/5435.php). Accordingly new CoP holders on and from 1st February, 2019 are required to comply with Mandatory Capacity Building Training (MCBT) requirement for renewal of CoP for the FY 2022-23.

9. Other relevant issues for Renewal of Certificate of Practice are as follows:

a. Application for renewal of Certificate of Practice upto 31st March, 2023 has to be made in prescribed Form M-3 which may be filled online or through hard Copy of form duly filled in and signed on both sides together with Renewal Certificate of Practice fee of Rs.2,000/-* and all other dues to the Institute on account of annual membership fees * and entrance fees *.

b. The annual membership fee for Associate and Fellow members are Rs.1,000/-* and Rs.1,500/-* respectively. The entrance fee * for Associate and Fellow members is Rs. 1,000/-* each payable at a time at the time of application for admission to Associateship or advancement to Fellowship, as the case may be.

c. The fees * may be paid online or by Demand Draft/at par cheque payable at Kolkata if remitted by post to the Headquarters of the Institute.

d. Members should note that the **renewal of Certificate of Practice can be effected only after receipt of the prescribed fees * along with duly filled in form at the Headquarters of the Institute and on meeting the stipulated CEP credit hours.** Mere submission of the same at the Regional Councils or Chapters will not be sufficient. Members are advised to make payment directly to the Headquarters or use the online facility of submission of application and payment to avoid any delay.

All practising members are advised to send their application for renewal of Certificate of Practice for the year 2022-23 along with other requirements as indicated above immediately so as to reach the Institute's Office at Kolkata well in advance to enable the Institute to issue the renewal of Certificate by 31st March, 2022.

Renewal of Part-time Certificate of Practice

1. For renewal of part-time Certificate of Practice, it is also essential to furnish a certificate from the employer in the following form or in a form as near thereto as possible if the practising member has undertaken any employment or there has been a change in employment:

> "Shri/Smt …….. is employed as designation) …….. and (name of Organisation) ……. …… he/she is permitted, notwithstanding anything contained in the terms of his/her employment, to engage himself/herself in the practice of profession of Cost Accountancy in his/her spare time in addition to his/her regular salaried employment with us.
>
> Signature of Employers with seal of Organisation"

2. It may be noted that members holding Part-time Certificate of Practice (CoP) are not eligible to undertake statutory assignments like Cost Audit, Central Excise Audit, etc.

*GST is applicable against payment

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For CMAs & CMA Students Only
Basic Course Fee: ₹9,900/-
Duration: 50 Hrs

Diploma in Information System Security Audit
For CMAs & CMA Students Only
Basic Course Fee: ₹20,000/-
Duration: 100 Hrs

SAP Finance Power User Course
(SAP Learning Hub & SAP S/4HANA)
Basic Course Fee: ₹20,000/-
Duration: 80 Hrs

Executive Diploma in Business Valuation
(with Financial Modeling)
Basic Course Fee: ₹20,000/-
Duration: 100 Hrs

Certificate Course in Arbitration
Basic Course Fee: ₹20,000/-
Duration: 50 Hrs

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https://eicmai.in/ADVSCC/DelegatesApplicationForm-New.aspx

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