

# **IPPN ANNUAL CONFERENCE 2021**

'TECHNOLOGY AND POLICY'

**March 26-27, 2021**

3rd Annual Conference of India Public Policy Network  
Hosted by Bharti Institute of Public Policy,  
Indian School of Business

## **INDIA PUBLIC POLICY NETWORK CONFERENCE – 2021**

# **CONFERENCE PROCEEDINGS**

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Bharti Institute of Public Policy, Indian School of Business

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Our special thanks to the members of the IPPN Steering Committee for their continuous support and guidance. We are thankful to IPPN Organizing Committee for helping us in organizing the event. We would like to extend our sincere gratitude to the chairs, presenters and panellists, facilitators, and rapporteurs for their contribution during the various sessions of the two-day workshop. Thanks to the Bharti Institute Team for the entire backend support.



## ABOUT BHARTI INSTITUTE OF PUBLIC POLICY

Bharti Institute of Public Policy aims to lead education and research in the domain of public policy. The institute stands tall as one of India's eminent public policy thinktanks' engaging with eminent policy makers and providing them with critical, data-driven evidence, research and analysis of relevant and critical concerns. Bharti Institute has partnered with the world-renowned Fletcher School for the Institute's flagship program Advanced Management Program in Public Policy (AMPPP). The programme is an interdisciplinary course that caters to mid to senior-level government and private sector professionals.

The institute works on policy challenges across diverse domains, primarily Agriculture & Food, Environment, Education, Finance, Governance and Digital Identity.

## EXECUTIVE SUMMARY

Technology has been a transformative force in society since time immemorial, but history is replete with examples of technologies that played a critical role in lifting a sea of humanity from hunger, diseases, natural calamities etc. However, it is equally important to appreciate the two-fold role public policy has played in this process, by firstly, incubating ecosystems for technological innovations and propelling it towards public good and, secondly, by bringing these technological practices to the fore impacting the daily lives of more than a billion people in the country.

The conference witnessed 103 paper presentations and 16 panel discussions during IPPN 2021 with more than 200 speakers and presenters during the two-day event. The papers and panels were under the broad theme of “Technology and Policy” and reflected upon various sub-themes of the conference. The proceedings start with a welcome address and keynote addresses followed by the inaugural plenary. Next, the papers and panels are categorized under the broad themes followed by papers and presentations under the sub-themes and certain sub-sub themes for better representation and understanding of conference outcomes. The proceeding ends with the concluding address and vote of thanks.

## KEY OUTCOMES OF THE CONFERENCE

**Interrelations of Technology and Policy:** Designing a good policy is a multi-disciplinary process where technocrats, researchers and designers can come together. This process helps in addressing inclusivity and community concerns. In India, designing the policy is a challenge because of its diversity and plurality of views. The policies are directly impacted by design practices and therefore, utmost care needs to be taken in its design. Further, there is a need for a diffused and decentralised system of communication where different forms of media can be helpful. The government is required to come up with a participatory forum to aid and boost the data sharing that presently exists in a scattered manner across various technological solutions. Technology allows validating the area of program implementation and helps in checking the flow of funds through multiple levels. Therefore, the role of technology is in enablement, by enhancing program penetration and protection. While technology shapes policy change, the policy must regulate technology towards responsible usage and address the risk to society.

**Building Human Capital with Technological Support:** Technology plays important role in inclusive socio-economic development especially focussing on women empowerment, quality education policies and better employment. Government-led policies are crucial for environmental issues, building infrastructure, facilitating skill development for women empowerment, and in introducing new technologies. Technology-enabled analytics could be used in improving educational outcomes and learnings for the students. Apart from this, technology could also help empower local communities. New technology can bridge the information asymmetries and gaps if any. When information is available at the grassroots level to administrators and gram panchayat members, it is easier to implement policies. Capacity building of local communities is enhanced with new technology and institutional support. These communities then, serve as agents of change on the ground. The administration needs to undergo capacity building to use technological tools for implementing policies.

**COVID Response and Use of Technology:** Smartphones are an example of how technology is being utilized to access the economic trends with the use of mobile trading apps. This shows that the pandemic has contributed to the economy while on the other hand there were the unemployed trying to find sources of income-highlighting how different people navigated the pandemic. Ongoing research focuses on how different applications are being used to empower citizens through information but at the same time, there is scepticism about what government will do with the data and this needs to be addressed. Further, an opportunity that the pandemic presented in enabling policy and design is also an eye-opener on where we lacked in the utilization of technology over the last few decades. In various E-governance initiatives, researchers found out that there is a gap in terms of advanced technological inputs interacting with the policy sphere. Collaborative efforts among academicians, practitioners, civil society, and government must continue to adapt to technology solutions for the delivery of essential services, programs, and schemes. This will contribute to producing new evidence processes and structure across states. The pandemic provided an opportunity to address some of the long-standing issues around distressed migration, however, it is essential to build on the pilot solutions and demonstrate evidence to increase the government involvement in devising policies. On the other hand, it is also important to train communities for better implementation of technology.

**Evaluating Direct Benefit Transfer (DBT):** DBT is a citizen-centric initiative that uses a technological platform to reach out to beneficiaries directly and eliminate middlemen and corruption. DBT is a well-intended programme that also has many challenges. They include the issues of information asymmetry, redressal issues, limited points of access etc. All these issues create problems for the last mile delivery goal especially when there is no face of government at the ground level. The hurdles of terrain, transportation, lack of ATMs, biometric failures were mentioned which eventually burdens the beneficiary. Studies show that smart card portability made more sense to the beneficiaries in an urban area as compared to a rural area. The technical advancements like the smart ration cards, Annapurna ATMs are landmark achievements, however, there were issues of technical glitches.

**Establishing A Digital Identity and Data Security:** India has an ambitious plan to go digital. Artificial intelligence and cybersecurity lie at the centre of this digital revolution but discussion in the policy spheres regarding its potential applications and interface with international trade is limited. A big limitation in India for the financial sector to get benefits from digital identity is that a large proportion of its population is not connected to banks. Recent efforts to link people with a bank account has shown results on the ground. The financial sector in India is going to be revolutionised in the next decade and protecting the digital identity will be significant. Digital Identity is important for an effective and transparent service delivery system. It plays an important role in the financial sector in reducing money laundering, financial terrorism, and many other illicit financial transactions. Also, it is important to establish industry and academic collaboration to boost research and development in the Big Data domain. Here there is a big role for the government in protecting the privacy of the users and have stricter laws for cyber frauds. As the system becomes mature, the user also becomes more mature. Increasingly, more and more data are being collected by private companies and governments alike and providing cyber security is the need of the hour to protect the people and their digital identities.

**Including the Poor- Financially:** Financial inclusion is a process that ensures access to appropriate financial products and services offered by the government and businesses. For millions of poor in India, financial inclusion is still a dream. Therefore, the process needs to be developed and nurtured with the right policies and regulations. This means there could be a motto of - credit for all, saving for all, capital for all, investment for all and financial markets for all. Investment, technology, and awareness programmes need to be backed by policy and regulations for successful financial inclusion. The major challenges for financial inclusion in India are - the non-uniformity in regulations related to cloud-based services, lack of clarity in the guidelines about data collection, data sharing and data management. Further the cybersecurity risk management, guidelines and regulations are some areas that needs strengthening. In India, the digital infrastructure is not steady, powerful, and resilient and up to date. The problem is not about the capabilities, but the lack of security given to the people who are trying to innovate.

**Sustainability and Climate Actions:** Technology can help in attending equity in sustainable development. Promoting renewable energy and using recycled water are some of the important aspects which are adopted in many countries. Further, adopting climate-friendly and energy-efficient technologies, developing technology for improving food production and mostly organic are some other priority areas to attend sustainability. India's economic growth in the past has not addressed the fundamental issues of human development. Growth has not created many jobs and has less trickle-down effect resulting in income inequality. The public spending on the development indicators including education and health is much less than the amount of the problem at hand. Climatic changes are leading to many uncertainties, volatility, complexity, and ambiguity in the economic and social systems. Climate actions are required that balances between people, planet and profits leading to green growth. Focus on socio-economic development or inclusive development with the right climate action is the need of the hour.

## 1. Welcome Address and Keynotes

### 1.1 Welcome Address - Ashwini Chhatre, ED, Bharti Institute of Public Policy, ISB

**Ashwini Chhatre** began his welcome address with the perspectives that the year 2020-2021, due to the pandemic and the global coverage of technology has witnessed a rigorous intersection of policy and technology. In most cases, policy caught up to seize opportunities or address the constantly imposing and unforeseen challenges wherein occasionally it appeared that technology was running ahead of policy. The IPPN conference provides an opportunity to deliberate upon this intersection of technology and policy but also understand and build upon greater integration of research and practice. It throws light on the progression of public policy where academics and administrators, veterans, practitioners, and policy makers come together to discuss every temporal challenge on hand. This feedback mechanism between stakeholders augurs perfectly for making public policy-relevant while also maintaining rigour in research. This conference is a ground to initiate conversations that facilitate the agenda of making public policy inclusive and holistic and evolving with the available and potential technological aid.

### 1.2 Keynote Address - Amarjeet Sinha, IAS (Retd.), Advisor to the Prime Minister

**Amarjeet Sinha** elaborated three broad ideas of pro-poor public welfare, community connect and technology as a medium to enable both community welfare and connect. The delivery and reach of many pro-poor public welfare programs, whether it is public service or entitlements, is based on the interconnectedness of technology, policy, and communities. Citing examples from policy papers, NSSO 76<sup>th</sup> round and Socio-Economic Census, Shri Sinha talks about India's experience in provisioning the bare necessities (rural electrification, financial inclusion, infrastructure, etc.) to deprived households. He illustrated the role of technology as an effective policy instrument by citing an example dated 7 years ago, the lack of ability to record information about beneficiaries or assets, geo tag location of roads and infrastructure, which is now a well-developed system readily available in the public domain. In this way, technology adds to accountability. During the Covid crisis, the government could quickly reach out to the poverty struck demographic of the country simply through their AADHAR linked bank accounts. Aadhar also enabled provisioning services like cash transfer, LPG cylinders or food grains for almost 80 crore people across the country. This was possible due to the availability of digitally linked bank accounts registered with the government.

Secondly, Mr Sinha ascertained the power of a strong community connect by citing the Special Campaign on Gram Swaraj Abhiyan. Around 63,974 villages (10% of the villages in the country) with most deprived households were provided with at the most seven basic services: LPG gas connection under Ujjwala scheme, LED bulbs under Ujala scheme, electricity under the Saubhagya program, bank account, accident insurance, life insurance and immunization under Mission Indradhanush. The basic structure was that there was a community team (local frontline team) along with the panchayat representatives and women members of the livelihoods mission working together to ensure that these seven basic services are delivered to the poor. This proved that given a strong community connect, technology aids in identifying target groups for the delivery of public services. Technology also plays a role in the validation of (using geo-spatial tools) and monitoring the system, to hold it accountable. Further, he emphasized the need for a system where

local community institutions take responsibility to ensure quality education and nutritional provisioning to children in both rural and urban India. Technology can enable such interventions across the country, including at the village level.

The intersection of community-connect and technology enables the usage of data at the local level and can be made available in an accessible form for local communities to make decisions on public policy questions. The challenges are ensuring appropriate usage of public information, technology and community-connect. A clear vision is that every household ought to have a life of dignity, housing, water, education and livelihood opportunities, health care facilities etc. Communities' ability to leverage higher-order economic activity and their ability to access credit will move up if the bare minimum is supported by infrastructure based on community connect and technology.

### **1.3 Keynote Address - Rumki Basu, Professor, Department of Political Science, Jamia Millia Islamia**

**Rumki Basu** talked about her latest publication- "Democracy and Public Policy in the Post-COVID-19 World-Choices and Outcomes" and related the same to the theme of the conference. She began by stating that the year 2020 had been a turning point in world history as it was a witness of the best and the worst in human ingenuity and governance capacities irrespective of the nature of the political regime and what public policies could or could not do in crises, in a global order brought with the uncertainties, inequalities, violence and disasters, that got exaggerated during the period of a pandemic. She further emphasized that the uniqueness of the Covid-19 crisis was that the entire world was caught in the act of sailing in the same boat at the same time. She also pinpointed that during times of crisis, the fragilities and strengths of governance capacity systems are exposed. She elaborated on the developments in the democratization of the governance systems across the globe and inferred that substantive democracy is the most difficult system to operationalize. She also highlighted the differences in public policy making between an authoritarian and democratic state and uniqueness of democratic public policy making and why it is more sustainable. Furthermore, Dr Basu propounded the Indian model to be far more sustainable of democratic public policymaking than the Chinese model which looked more effective but is not sustainable in the long run. She concluded that it is the Indian model - the world's largest democracy and its model of public policy making which the world needs to look at, review and applaud today rather than the Chinese model which looks more glamorous but has chinks in the armour and thus needs to be carefully looked at.

### **1.4 Keynote Address - V Srinivas IAS, DG, National Centre for Good Governance and Additional Secretary, Department of Administrative Reforms and Public Grievances, GOI**

**V. Srinivas** spoke about e-governance in India and that the strength lies in an inclusive digital model of governance. In 2015, the PM launched the digital India campaign to transform India into a digitally empowered society and knowledge-based economy. Several new initiatives have come up in the past few years and the proliferation of digital technology to the rural sector has changed India's villages making them technologically enabled. There was a proliferation of Aadhar enabled PM Jan Dhan accounts that led to huge empowerment in MGNREGA payments. The digital model of governance provides tremendous transparency in pro-poor policy implementation. India represents a trillion-dollar digital opportunity and there is an attempt to reduce the digital divide between the internet rich and digital poor by the expansion of internet access and high-speed internet connectivity. Technology-enabled interventions are seen in education, energy,

financial services, e-governance and towards doubling farming income through E-NAM. The digital transformation that is witnessed in Indian governance can be best seen in the scaling up of the programs. Today we have 1.2 billion Aadhar Cards and transactions have crossed over 100 billion since its launch. Prime Minister Jan Dhan Accounts have crossed 1.36 million and India represents the second-largest digital consumer base and benefits of technology have been widely accepted by rural societies. The technology progress in welfare state programs is widely seen. Digital identity through Aadhar, Jan Dhan Yojana bank account has massively enabled DBT, digital payments using BHIM, and UPI has benefited tremendously. GSTN has a massive digital platform, Digital India Land Records Modernization program has gathered massive scale, Digitization of ration shops and fair price shops, and other Aadhar driven platforms have benefitted the population at large. New India 2022 is broadly defined as India that would be governed by e-governance. Bharat Net, e-Taal, e-Sign, Digi-Locker, MyGov, e-Nam, e-Hospital, are some of the applications that are widely prevalent today. Some other good practices developed in the Indian context are CDBT, Environment Impact Assessment Clearance, Online library and education services, National Scholarship portal, Soil health card, MeghRaj, e-Taal, e-Sign, Bharat Net, Swayam, E-Hospital, Aadhar enabled payment services, PMGDISHA, BHIM and Rapid Assessment System.

During the pandemic, rules were amended to ensure that the virtual private network up to the deputy secretary level was provided and functional web rooms were created using several labs mandating NIC to do this task. The focus was on digital services for end-to-end service delivery ensuring the availability of high-speed internet through the unique digital identity, access to common service centres and seamless services across departments and jurisdictions to ensure services were available in real-time. Digital empowerment of citizens improved during the pandemic as more people adopted changes in technology.

## 2. Theme: Technology and Policy

To design a good policy, technocrats and designers can come together. It can help to improve upon the disorderliness in designing and implementing a policy. Policies need to be designed to address inclusivity and community concerns. In India, designing the policy is a challenge because of its diversity. The policies are directly impacted by design practices and therefore, utmost care needs to be taken in design. Media plays an important role in public policy. Because of the diverse nature of our country, media must have a local character. There is a need for a diffused and decentralised system of communication. The government is required to come up with a participatory forum to aid and boost the data sharing that presently exists in a scattered manner across various technological solutions. In this section, we discuss these aspects of public policy.

The papers and panels are related to the broad theme and the public policy aspects in general.

### 2.1 Inaugural Plenary - Technology and Policy

The panel discussed the need for cross-discipline dialogue about community-connect, technology and public services delivery in terms of direct-benefit transfer, social audit, geo-tagging for holding systems accountable. Internal audit aligned collectively with this perspective in place, public policy questions can be addressed with precision. Technology as a solution without validation from community-connect can be misused. Hence a coordinated feedback loop and partnership with panchayats and women's self-help groups can bridge this gap. The learning on pro-poor public welfare from the sanitation, housing, electricity, and financial inclusion sectors should be further applied to address the governance challenges in multiple systems.

The session was moderated by **Abhishek Kathuria, Assistant Professor, Indian School of Business** who remarked that the co-evolution of technology and policy can be brought about by disentangling the process that connects the two.

The discussion was initiated by **Purushottam Kaushik, Head, WEF Centre for 4th Industrial Revolution** who spoke about three broad components. First, the start-up sector in India is incubating solutions applicable across the globe. However, the policy must play a role in deconstructing the resistance from the start-up community to engage and invest in sectors like agriculture. Secondly, industries like Microsoft and other cloud service providers can provide an enabling ecosystem for the start-ups in play. Lastly, the policy needs to catch up with technological innovations. Hence, it is important to work on the scope for technological interventions across various domains, for example, using Artificial Intelligence in the Agriculture sector.

**Abhishek Singh, IAS, CEO, MyGov**, addressed how the government can help with technology incubation. He emphasized that the relationship between technology and policy is symbiotic. While technology helps achieve public policy objectives, in many ways public policy goals shape the direction that technology takes using examples. Public policies regarding the promotion of innovation and entrepreneurship shape the direction that businesses take. For example, when challenged with issues like climate change or the requirement of clean energy, and the policies that promote technologies that bring innovation in resource use are implemented, there will be more businesses that harness technology to build innovative energy solutions.

**Rohini Srivathsa, National Technology Officer, Microsoft India** spoke about what policy makers can do to guide the progress of technology. The important thing is to realize that technology is not an isolated sector, however, every sector is dependent on technology and hence it impacts the entire economy. Adoption of technology in every sector and enabling training to adopt is crucial in digital acceleration. She focused on how technology can be at the centre of resilience, and what challenges in the future can be solved using technology. She then talked about the positive role of technology in the Indian economy while also shedding light on the matter that it is vital to think about the role that India plays globally because of the growing significance of technology. This role will shape the start-ups, IT services and what (export of digital services) and whom we want to collaborate with (innovators). The Indian approach to technology and policy must be global so that the start-ups and other public-private partnerships can create impact at scale.

**Shalini Rajneesh, IAS, ACS – Planning, Karnataka** spoke about the role of technological innovation in driving policy solutions focusing on examples in the past. The major global and national policy must drive technology to develop tools to address the SDGs transformative promise “Leave no one behind”. She spoke about the huge dividends that can be derived from policy solutions based on technology using the example of Karnataka. She explained the digital haves and have-nots, drawing the example of technological innovation in Bangalore vs the rest of Karnataka.

The panel then discussed the other side of technology and policy, i.e., how technology can improve governance and daily lives. Technology precedes policy because technology enables strategic options that help devise policies. The following points were raised in the discussions:

- Technology allows validating the area of program implementation, for example, identify and track delivery of bare necessities to deprived households.
- The technology avoids the flow of funds through multiple levels and enables direct transfer to target groups. The Aadhar linkages and mobile wallet are good examples of this case where the notion of a bank has changed.
- The role of technology is in enablement, by enhancing program penetration and protection. While technology shapes policy change, the policy must regulate technology towards responsible usage and address the risk to society. However, it is crucial to be cautious that the principles of protection should not be a deterrent for adoption.

The panel accepted that we need to focus on innovation and not technology solutions. It is imperative to export locally developed technology solutions to the global market.

## 2.2 Paper Presentations

**Asilata Karandikar, Assistant Professor, Department of Political Science, Wilson College, Mumbai,** in her paper on “Ideological embeddedness of institutions” studies Blockchain Technology in India and reviewed the literature to understand the benefits and ideological embeddedness behind Blockchain technology. She emphasizes how Blockchain creates a smart contract as a public ledger. As a key finding, the paper helps in understanding Blockchain Technology’s institutional capacity to aid in governance strategies in India.

**Sumeysh Srivastava, Senior Resident Fellow, Vidhi Centre for Legal Policy** stated his point of enquiry as focused on Internet access and digital literacy in his paper titled “Use of Technology in Citizen Interaction with the State”. He mentioned the specific data point of

Umang Application run by the government which gives access to 26 thousand government services online to the citizens while only 50% of the population of India has broadband internet access. He pinpointed the contrast as to what the government is providing to the citizens and what citizens can access. He discussed why the government's focus on e-governance even when the majority population does not have internet access. He stated that successful e-governance initiatives have led to more transparency and accountability but where e-governance systems have failed it is because of failure to create the corresponding IT infrastructure. He explained this relationship under two frameworks: The Technology Acceptance Model and Actor-Network Theory.

**Anant Kamath**, Assistant Professor, National Institute of Advanced Studies (NIAS), while presenting his paper "Old Caste Exclusions and New Digital Divides" talks about issues relating to the intersection of technology and the subaltern. The author prefaces his presentation by saying he will focus on the relationship between technology and society. The author states that it is important to relook at the digital divide in India and take a deeper look at the subaltern in Peri-urban Bangalore. Bangalore is an especially interesting case because it is the home of the technological frontier in India in what is described as an 'Information Society'. The author found that ICT is another method that has emerged as a way of caste-based exclusion. ICT often leads to further exclusion because only a select group of people with access to certain conditions get into the ICT sector. Similarly, the author states that the National Digital Literacy Mission while it has noble ambitions, it fails in healing the caste-based digital divide because it takes a limited understanding of caste dynamics in technology and lack of understanding of political context. The author makes a very important point of the durability of caste in India and even areas such as technology which is supposed to be a level playing field is not exempt from caste-based exclusion. Dalit and other castes are left to languish in informal sectors unless they are politically connected or some other factor. It is therefore important to understand the digital divide especially for vast groups in India such as people escaping from agrarian distress, or migratory labour. The author states that a lot of these people have smartphones but do not participate in the economy the same way as other castes. The information-less may own tech but alienated and disenfranchised.

**Jyoti Sharma**, Research Scholar, Dr Ram Manohar Lohiya National Law University Lucknow presented a paper titled "Digital Divide: As an Emerging Form of Inequality". The author delved upon the historical presence of inequality in India. This inequality was highlighted the most in the public domain since the beginning of the lockdown. Focusing on education, about 13 cr. Indian students, who did not have access to technology were negatively affected, creating further knowledge gaps and exclusion of the underprivileged. Technology-oriented policies are bound to be unsuccessful if people at the ground do not have access. There is a need for strengthening digital infrastructure and address the digital divide for holistic development.

**Girish Sharma**, Director, Atal Bihari Vajpayee Institute of Good Governance and Policy Analysis | **Mausmi Hajela**, Advisor, Atal Bihari Vajpayee Institute of Good Governance and Policy Analysis & **Sudhir Chaudhary**, Consultant Specialist, Atal Bihari Vajpayee Institute of Good Governance and Policy in their paper, "Envisioning Smart Real Estate Digital Infrastructure for Madhya Pradesh" focus on Smart MP – Real Estate Digital Infrastructure (SM-RE@DI) with its roots back in the Real Estate Policy, 2019 of Madhya Pradesh. The presentation gave a background about the existing e-platforms in Madhya Pradesh, presented case studies from Estonia and Finland and how the need for envisioning a single window for real estate arose. The paper proposed independent staging, and the creation of a standardized digital asset layer to promote interoperability and citizen-

centric usability. Several implementation challenges like lack of a single central agency, incompatible e-governance infrastructure, language barrier and training issues for staff and end-users were also elaborated upon.

**Sunil Gupta**, Research Scholar, IIT Ropar presented a paper titled “Mobile Applications as a Platform for Public Policy Implementation: Is it Empowering Enough?”. The paper emphasized that India has increasingly been using digital governance platforms and apps, which are backed by the government. But the catch lies in the fact that this is a “top-down” approach as a certain level of education and skill set is required to use these digital technologies. Due to this reason, the rural sector remains largely aloof from digital transformation. Creating and inculcating a feeling of psychological empowerment was crucial for the adaptation of these technologies.

**Sanjoy Sarkar**, Assistant Professor of Sociology, Sudhiranjan Lahiri Mahavidyalaya, West Bengal, in his paper “The Possibilities of Disability Study through ‘Real Time Disability Tracking Mechanism’” began by referring to the WHO’s Disability Action plan 2014 to 2001 and Disability Census of Govt of India, 2016 and observed challenges in getting updated disability data for their needs and what actions are taken for them. He stated that globally 1 in 7 people suffer from disabilities and as per Census 2.68% of Indians are disabled. He revealed various factors responsible for disability and irrespective of past, caste, race, region, and economic composition anyone can be or has the chance of having a disability at any point in time. He attempted to merge the crisis or challenges of disabilities with the growing digitization in India and propounded the use of digital technology in collecting and monitoring real-time disability data for creating a more inclusive world.

**Rinki**, Assistant Professor, University of Delhi presented a paper titled “Technology and Policies: Issues and Challenges”. The author began the presentation by posing the question of whether technology, digitalization and ICT’s have increased development, or have they created barriers for the marginalized? As a certain skill set is a prerequisite for digitalization, several people remain excluded. The author emphasized that local context and prevailing conditions need to be understood for creating and implementing policies. Access and availability of technology need to be ensured to minimize the existing digital divide.

**Pragyan Deep Agarwal**, Research Fellow (Legal), Center for WTO Studies and **Shreyansh Singh**, Research Fellow (Legal) Center for WTO Studies in their paper “Cybersecurity and International Trade Framework: Mapping Policy Options for Developing Countries” propounded that cybersecurity is at the centre of the digital revolution but discussion in the policy spheres regarding its interface with international trade is limited. They elaborated the history of developmental frameworks evolving under different agencies such as the United Nations, International Telecommunication Union, OECD, EU, G-20, G-8, BRICS, ASEAN and India. They further pinpointed the drawbacks in the current cybersecurity frameworks such as compromise in sovereignty and preference for industry standards and he concluded by providing solutions optimized for developing countries.

**Kunal Gupta**, Former Head - Centre for Competitiveness, ILEG, Planning Department, Government of Andhra Pradesh in his paper “A Technology Governance Framework” began by throwing light on the bigger picture of the comparative position of Andhra Pradesh which is a factor-driven economy and businesses are competing on the low cost of factors of production and slowly graduating into an efficiency-driven economy wherein businesses are increasingly requiring efficient supply chains and lower transaction costs over the supply chain rather than relying on low-cost factors of production. To build

administrative and political consensus on technology intervention the speaker relied on Michael Porters Framework. His presentation focused on labour productivity, fixed capital investments, total factor productivity and labour utilization not for the large enterprises but for positioning local small and medium enterprises to adopt new technologies that help them reduce costs.

**Vishnu Sivarudran Pillai**, PhD Student, Hong Kong University of Science and Technology in his paper titled “Risks and Regulatory Challenges of Artificial Intelligence Technologies in Indian Construction Industry” put forth his research question that how will the risk and regulatory challenges of artificial intelligence manifest in the Indian Construction Industry? He further explained the identification of AI research frontier and risks, areas of regulatory importance, technology expectation in the post COVID era and defined the risk space. He conducted risk workshops and online interviews with 56 respondents for collecting data. He further defined the risk space under the ambit of different regulations and identified inadequacy in these acts to address the risks and barriers to innovation. The speaker finally concluded that sectoral expertise enabled him to define the risk space in construction and AI, and future work shall be the interviews with the regulators in construction.

**Iram Hasan**, Research Scholar, Department of Management Studies, Indian Institute of Technology (IIT) Delhi introduced her paper “Corporate Social Responsibility in India: From Policy Making to Stakeholder Approach” by addressing What CSR is? CSR, the author states is fast gaining prominence in the business setting due to increased mediation of all stakeholders. However, the author explains that the impact of CSR on Corporate Finance is highly debated. Further, the significance of the paper lies in adding to the knowledge on CSR in India. The author states that companies generally take two main approaches to CSR – ‘Greenwashing’ vs ‘walk the talk’. The former is when companies merely do CSR to appear responsible. Both approaches have different impacts on financial performance. The author also presents a summary of studies exploring CSR and CFP relationship and the literature shows mixed results. The CSR-CFP link can lead to three outcomes according to the paper, namely, Positive association, negative association and neutral association depending on the company and other factors. The author then moves to explain the differing three approaches to measure financial performance. Accounting based vs market-based being the two prominent ones. Accounting based approach is old and lacks contemporariness. Market-based accounting approaches have their own biases. The study undertaken by the authors took a sample of 286 companies to examine the period of 2014-2019 – using a panel regression method. The study considered the effect of CSR on future financial performance, the result of which indicates a mixed relationship. The study also found that the accounting and market-based performance measures are positively associated with CSR performance. The results, the author states, are also suggestive of good management theory in the Indian CSR context. The theory highlights that good social performance results in better financial performance. Concluding that Indian firms have the potential to ‘do good by doing well.

**Arunender Singh**, Research Assistant, Indian Institute of Technology, Kharagpur focused on fake news as a phenomenon in his paper titled “Reining Fake News in India: Legal Responsibility of Intermediaries”. He attempts to answer questions such as what is fake news? And what is it in a real sense? The author seeks to examine the role of the Supreme Court of India and newspapers, television to techs like Social Media and news apps. Social Media is described by the author as a ‘Network of Networks. The presenter also dwelled upon the ill effects of fake news. She argued that the issue comes to head when fake

news becomes prevalent in politics through instruments like Social Media. The author cites an SC judgment where the court admits that certain media channels are spreading fake news communalizing hatred “concerning the Nizamuddin Markaz organized by Tablighi Jamaat in Delhi in March of 2020. The court in that instance, the author states, also issued an advisory to the Ministry of Information and Broadcasting for their failure to have any mechanism to combat fake news. In some instances, the author describes, during the pandemic, fake news led to the loss of life as well. Fake news means that people assume things and act on them without knowing for sure. Next, the authors describe the types of information disorder, namely, misinformation, disinformation, and misinformation – all three of which exist between the spectrum of intent to harm to just falseness. The authors suggest that the government needs to intervene with some action to combat fake news such as a portal by the government which is designed to provide reliable information.

**Michael Howlett**, Burnaby Mountain Professor and Canada Research Chair, Simon Fraser University spoke about the modalities of policy design such as Co-Design, Non-Design and Authoritative Instrumentalism in his paper titled “The Modalities of Policy Design: Co-Design, Non-Design and Authoritative Instrumentalism”. He emphasised the relevance of design by stating the question that to what extent our government can design public policies, whether it is a matter of engineering business systems or technological systems or developing sustainability strategies or learnings from other countries that required some number of capacities to design and strategies, on the part of governance. He revealed that his research intends to re-examine the literature from an empirical lens and think about the different styles of design. He propounded five policy designs namely- Design and strategic planning, co-production and co-design, political design process, group theory of design, and instrumentalization.

**Shyamjeet Maniram Yadav**, Research Scholar, Jawaharlal Nehru University presented a paper titled, “Evidentiary Vacuum and Rare Disease Registry in India: An Evolutionary Policy Perspective”. The paper mentioned that the policy for rare diseases is under contestation with the Indian government and the reason for the delay is the lack of resources and evidence which points towards an evidentiary vacuum. As a solution, a rare disease registry is suggested. The paper highlights that there is the emergence of knowledge networks like Patient Advocacy Groups through which data sharing is happening, however informal. In totality, the paper hints that there is a lack of a platform that can lead and support the government in the creation of a rare disease policy.

**Tripta Sharma**, University of Delhi while presenting her paper “Media and Epistemology of Public Policy: Exploring Intersections of Mass Communication, Language and Market” said that Country has witnessed exponential growth in media with the development of technology. In 2002, the print media is open for Foreign Direct Investment. With its opening, the responsibility of media has gone up.

**Rajeev Malhotra**, Professor, Jindal School of Government and Public Policy, O.P. Jindal Global University, Sonapat, & **Sridhar Kundu**, Sr Research Analyst, Indian School of Business presented their paper titled “India's Tax System: Some Imperatives for Advancing Inclusive Development”. The presenter talked about how India’s tax system is helping in the direction of the inequality. He pinpointed that although growth is happening not trickling down for the poor and thus income inequalities are widening. He pinpointed that countries having a high Tax GDP ratio has a greater capacity to spend and specified that India has low tax collection and thus lags in public spending. He also argued that India’s tax system is not cooperative with the people or inclusive society, is

regressive and highly dependent on indirect taxes. He finally concluded that the govt should rely more on direct taxes and suggested tax administration through tax reforms in the case of indirect taxes.

**Ketan Reddy**, Research Scholar, Indian Institute of Technology, Madras presented his paper titled “Does Digitalization Spur Global Value Chain Participation? Firm-Level Evidence from Emerging Markets” that revolved around gauging and understanding whether the rise of GVCs coincides with the advancements in ICT. The importance of Global Value Chains (GVCs) in the global economic ecosystem was highlighted for small and medium businesses as well for knowledge sharing and technical know-how to businesses. Further, the paper empirically investigates if ICT advancements have boosted the GVCs growth story. The findings showcased that digital adoption is promoting GVC participation where a significant positive impact is evident on small and medium firms as well and not just big players of the GVC ecosystem.

**Madhulika Banerjee**, Professor at Department of Political Science, University of Delhi, in “A Series of Conversations Between Researchers and Field Workers/Activists/Practitioners on Issues of Policy Creation, Implementation and Evaluation on the Role of Knowledge in Development” laid down that faster development of technology improves its importance in public policy and decision making. While prioritising technology, it should be remembered that there is a hierarchy in the knowledge system. Transfer of knowledge is quite important to bridge the gap between awareness and non-awareness. Public policy needs to bring down the hierarchy and facilitates knowledge transfer. Public policy should evolve with change in technology. It must be inclusive. The technology gap in rural and urban should be addressed in various public policies. It must involve local character. The demographic transition and change in demand and requirements coping with this shift must be taken care of in every policy.

**Madhura Dasgupta and Samarth Gupta**, Associate Fellows at National Council of Applied Economic Research (NCAER) in their paper titled “Supervised learning of enterprise borrowing from Self Help Groups in India” highlighted the role of SHGs in minimising the role of informal borrowing. The paper uses eXtreme gradient boosting (XGBoost) and ML methods to find predictive determinants of SHG as the major source of finance in novel entrepreneur-enterprise-village matched data. It concludes that SHG credit expansion is limited, on average only 16% of additional firms likely to opt for semi-formal loans.

**Luciano Andrenacci**, Associate Professor, Escuela de Política y Gobierno of the Universidad Nacional de San Martín, Buenos Aires in his paper titled “Tempo Without Tears. A Public Management Perspective on the Prayagraj Kumbh Mela 2019” presented the case that highlighted how Prayagraj Kumbh Mela stood out as a governance model for public management, planning and transparency. The case was studied keeping in focus the gathering as a purposeful phenomenon that could be reverse engineered to study the whole working of the mela. The findings point at how the Mela created public value, social inclusivity and emerged as a well-governed event. The case provided an insight into how the challenges of maintaining Tempo, Coordination and risk management translated into successful synchronization, environmental control, and risk control.

## 2.2 Panel Discussion - Technology and Public Policies - From the Lens of Rural India

**Poornima Dore**, Head – Data Driven Governance, Tata Trusts spoke about the efforts in the past decade to address the issue of information asymmetry for decision making in the rural sector. While some of the programs look specifically at issues around health,

education, environment even if they are targeting rural communities there has been a change in planning concerning allocations to panchayats or districts as opposed to the bottom-up approaches using participatory planning. New technology can bridge this gap because what we see as system deficiencies are also governed by the fact that a district collector or block officer must have the tools to triangulate information. For decision making, the stakeholders must see how information can be used as an aid. When information is available at the grassroots level to administrators and gram panchayat members, it is easier to implement policies. Capacity building of local communities are receptive to new technology with institutional support and serve as agents of change on the ground. The administration needs to undergo capacity building to use tools for policymaking.

**Harish Hande**, Co-Founder, SELCO used examples from blacksmithing to demonstrate a thinking divide in the technology sector towards skilling and the applicability of the term. He emphasized that the mental barriers towards what can be accepted as skilled labour or who can be categorized as experts have to change in the country. Such resistance from the technology service providers limits the inclusion of the rural sector in digital transformation and empowerment. It is important to define pathways and to redefine these concepts. Secondly, local people trained in vocational courses are great resources as they understand the intersection of the problem and technological tools to solve the problem. Therefore, they are in a better position to estimate the longevity of new technologies and participate in the innovation process.

The role of technology in value chains in the agriculture, animal husbandry sectors must be redefined. There is potential for increasing the livelihoods of the population, reduce treachery and neutralize gender. Many tools in agriculture are male-centric that demands physical strength and technology can democratize gender. Efforts to define pathways to make technology a human-centric design to solve problems in niche sectors and contribute to the global market. There is a need to shift out of the top-down approach and encourage innovation at the grassroots level. We need to see how we can create an approach to realise the benefits of technology at scale by including skilled people in diverse rural professions.

**Amol Gaikwad**, Medical Director, Better Education Lifestyle & Environment Foundation discussed the relevance of technologies in healthcare in rural areas using an example of online consultation with doctors at the village level, a project with Tata trusts aimed at addressing primary healthcare problems in rural areas where the population density is the high and medical staff is short. He spoke about ways to provide accessible and quality healthcare in the rural sector using technology and digital platforms. A design to provide primary care (management of hypertension and diabetes in Mathura) using telemedicine as technology intervention was developed and the limitations of the tool in service delivery were assessed. One of the limitations is resistance from the communities to adapt to new technology. This can be addressed by providing institutional support and generating capacities at the local level. The inference from the study also shows that technology by way of service delivery creates employment in the rural sector.

**Siva Muthuprakash KM**, Researcher, VikasAnvesh Foundation spoke about how technology is applied in the agriculture sector. One, Barriers to adopting to new technology – interpretation of technology and knowledge transfer is a constraint and people-centric technology helps overcome this challenge. The gap needs to be bridged by ensuring that the knowledge transfer to farmers is accurate. Two, scaling up – when it comes to farming technology, we are moving out of technology-centric (transfer of

technology to the farmers) and moving towards innovation pathways and considering the entire fabric of socio-economic and institutional governance on how technology can be transferred to the farmers. Farmers and the agriculture sector must adapt to technologies that play a larger role in production, for example composting and water management. He also spoke about the importance of investment in climate-resilient technologies. Water is going to be a critical space where not only the farming community but the whole of rural India is going to face a crisis. Technology for institutions is essential to improve farmers position in the market and supply chain. Ownership of data and use for decision making should be with communities and farmers. The way forward is design-based scaling of technology and taking technology to the farmers.

**Osama Manzar**, Founder & Director, Digital Empowerment Foundation mentioned issues of gender and language divide in the digital space and suggested a bottom-up approach towards technology adoption and transformation. Education is not a prerequisite to adopting technology and support in the form of training and human-centric technology transfer can address such limitations. It is also crucial to redefine the word 'skilling' and 'experts' to enable the inclusion of the rural population in technological innovation. Since India is home to diverse languages, technology and digital transformation must be available in vernacular languages to aid information transfer.

**Sanjiv Phansalkar**, Director, VikasAnvesh Foundation summarized the proceedings of the panel discussion and emphasized the importance of identifying pathways to make India a digitally empowered society and a knowledge-based economy. He defined digital empowerment as a combination of digital inclusion and agency of people. He shed light on fact that women and minority communities with fewer assets are left behind in the digital empowerment process. Those who have access to digital platform use technology for recreational purposes and not empowerment. Therefore, it is crucial to provide navigation comfort to the people. Another barrier is that information provided through technology is in English and not in a vernacular language. Technology must offer services in vernacular languages to improve the inclusion of the rural sector in digital transformation and innovation.

### 2.3: Panel Discussion - Worker Voice: Using Technology to Drive Cultural Change in the Garment Manufacturing Industry

**Ankita Nanda**, Partnerships and Design Associate, Good Business Lab opened the floor by bringing up the mechanisms on how technology can be leveraged for raising worker's voice. Teresa brought up the academic connect as the anecdotal link from Albert Hershman's paper. Broadly she then added how can the union and non-union workers be motivated, starting from the employee satisfaction survey with a control group which effectively reduced the attrition rate. **Piyush Gandhi**, Senior Research Associate, Good Business Lab then added, how can the management handle unnamed grievances. **Sakshi Katyal**, Senior Executive, Organizational Development, Shahi Exports introduced Sahee, the grievance redressal tool and why should the HR be also trained. These tools can be low cost and low-intensity solution which can be applied to any person with literacy level.

**Arvind Patil**, Design & Program Manager, Good Business Lab added that they reached to all the stake holders starting from top management, managers, workers for a focus group. There are also specified nudges that can be designed for HR executives. **Teresa Molina**, Assistant Professor of Economics, the University of Hawaii at Manoa Senior validated his claim on how the tool would affect the incentive by the HR when randomised controlled trials are run with the data on worker satisfaction. Ankita also introduced the Enache, enabled by a digital recording system and strategy maker has been added to Sahee,

which has three levels of members from the management to the floor in charge. Piyush explained here how the equal division between the treatment and the trust group experiment help them how awareness translated into usage, with growing evidence of trust levels.

#### **2.4: Panel Discussion - Anticipating Unintended Consequences in Policy Making through Design**

**Pranjal Jain**, Co-founder and Design Researcher, theUXWhale, India introduced the panel topic and emphasised that design plays a critical role in the public policy arena looking at the complex nature of issues in the public domain. Design in policymaking should be guided by justice, democracy, and inclusiveness. It can address any type of consequences which the public policy would not intend to do which is called unintended consequences.

**Devanuj Balkrishan**, Associate Professor, JK Lakshmipat University, Jaipur stated that demographic and technological shifts are fast. Every 2-3 years, technology changes. There is the possibility that individuals get misguided by new technology. Designing a policy in this complex environment by taking every stakeholder and individual is a challenge.

**Padmini Murray**, Founder, Design Beku emphasised that design thinking is important to address specific problems. Policy for Aadhar needs to be designed in such a way that it can address the persons of disability. As Aadhar is linked to a bank, and to access bank facilities, a disabled person needs to use Aadhar. Design thinking evolves and foresees the issues involved in every step and guides the policy in the right direction.

**Pawan Singh**, Honorary Fellow, Australia India Institute observed that design is used as a communication practice. It resumes the transaction relationship between the technological system and the use of the technology. However, it should have contextual relevance. It needs to address the anxiety generated out of the data privacy and use of new technology. The policy must adhere to certain design principles so that it can address the challenges of exclusivity.

**Saumyaa Naidu**, Design Researcher, Centre for Internet and Society stated that justice, democracy, accuracy are three important principles of Design. Every policy design must be human-centred. People's rights need to be addressed while designing public policy. Design practices need to be more participatory rather than empathetic. Learning from people is important for designing any policy.

### 3. Sub-Theme: Investment in Human Capital

Technology plays important role in inclusive socio-economic development such as women empowerment, quality education policies and better employment. Government-led policies are crucial for environmental issues, building infrastructure, facilitate skill development for women empowerment, and to introduce new technologies. One common thread across these papers is the use of technology-enabled analytics to improve educational outcomes and learnings.

#### 3.1 Paper Presentations

In the paper “Educonomics of Human Capital Investment”, **Sanjeev Padashetty**, Professor & Deputy Registrar and **Sunil Kumar**, Professor, Alliance University analyse the significance of human capital and through cliometrics. They discuss that how a nations education policies and investments have diffused down into its labour force through education and training creating a huge impact on the overall productivity of a nation. The paper also aimed to develop a model on the relationship between investment in education and gross domestic product. This paper uses the data of the last seven years for GDP at current prices and expenditure on education by the central government of India. The results of their regression model conclude that if there is an increase of one crore in the expenditure on education then there is a 108.56 crore increase in the GDP of the country.

Through the paper titled “Knowledge and Transnationality: Policies for Indian Diaspora Knowledge Networks”, **Sridhar Bhagavatula**, Senior Manager, Indian School of Business has put forward the argument that it is within the democratic intent of the state to incorporate the transnational content for the developmental and freedom calculations. He has elaborated on India’s approach to knowledge transnationality and has mentioned in the concluding observations the areas where knowledge networks are already functioning and how can these be expanded.

**Balaga Raghuram**, Research Scholar, IIT-Tirupati has introduced a twin-track approach in Indian Public Policy via mainstreaming and targeting for better effective policymaking in his paper titled “Mathematical Model for The Implementation of Twin Track Approach in Indian Public Policy”. Through mainstreaming, the government can ensure that persons with disabilities have access to their basic needs in all interventions and projects on an equal basis with others in the community. Targeting would help to address the specific needs of the individuals with disabilities to empower them and improve their situation. This twin-track approach would ensure equality of rights and opportunities for persons with disabilities. The author elaborated on how mathematical models can be used in this study although the study is still in the initial phase.

A micro ethnographic enquiry from the Indian village titled “Spatial Consciousness in Spatial Planning For ‘Just’ Village” by **Gopinath Annadurai**, Academic Associate, IIM Indore is a study on how the public goods are segregated within the village set up and how these are utilised by various socio groups. The study brings out that social category-based segregation is more intra village than inter-village. The author has used participatory research tools like transect walk, observation, semi-structured interview, resource mapping for the selected village.

**Mahendran Arumugam**, Assistant Professor of Economics, VIT Business School in his paper titled “PMJDY Accounts Are Another Form of Ration Cards: Is It Useful to The

Public?” focused on evaluating the usage activity of PMJDY accounts. It was centred around looking at the additional benefits received apart from PMJDY. The study highlighted the success and issues with the state and central government subsidies received by the beneficiaries in rural, semi-urban and urban districts of Tamil Nadu. Moreover, under the context of Financial Inclusion and Digital Financial Inclusion, it was highlighted that still majority of stakeholders visit their banks due to a lack of financial literacy and confusion regarding internet usage.

**Bharat Rout**, Research Consultant, University Grants Commission (UGC), New Delhi in his paper “Comparing the Educational Systems of South Asia: A Cross-National Analysis of Decommodification and Stratification” examines the regime types and education policy of South Asian countries from a comparative political-economic perspective. His work highlighted that the higher the de-commodification index means states play important role in providing free and quality education to citizens. In his study, in countries with low decommodification (Bangladesh, Sri Lanka, and Pakistan) the per cent of GDP spent on education is low per student with the effect of inequitable expenditure, high socio-economic disparity and low private players in the school sector.

**Yifei Yan**, LSE Fellow, London School of Economics, in his paper, “Mending a Difficult Accountability Relationship? Promise, Practice and Perceptions of Teacher Support in India and China”, mentioned how this “Difficult relationship” can be mended, is by viewing support to teachers as a vital complement to traditional accountability measure, followed by how the theoretical promise of teacher support is realised? Her paper brings on an original teacher survey in China and India. The four-component that stood out as the reasons for dissatisfactions with training, for subject contents, method and skills, students and classroom management and parental involvement.

**Tanu Gupta**, PhD Scholar, Indira Gandhi Institute of Development Research, Mumbai in her paper, “Structural Equation Approach to Modelling Social Norms in Female Education: A Case Study of India” measured the social norms in female education in India through Multiple-Indicator and Multiple-Cause (MIMIC) model. The indicators used to build this model were the number of years of schooling for the woman, the number of years for both parents receiving education individually, the proportion of brothers among the siblings, the highest level of education among the brothers and sisters, the marital status of the woman, per-capita expenditure of the household. She found a significant relationship among the indicators on social norms of female education.

**Sangita Dhal**, Sr. Assistant Professor, Kalindi College, The University of Delhi in her research study “Empowering Women Through ICT: The Changing Dynamics of Gender Equations in Rural Odisha” studies the interface between women and technology. She examines the significance of e-governance and analyses its impact through the functioning of the Common Service Centres (CSCs) as an agency of social change. Despite government efforts towards women empowerment because of many socio-economic biases significantly fewer women are village-level entrepreneurs (VLEs) who operate the common service centres (CSCs). E-governance has helped to overcome the obstacles in public life and helped them enter the domain of administration and governance, participating and contributing to the process of governance. To encourage women for representing political and administrative leadership positions, the government should continue their efforts with policy implementation, and society also should help women stay motivated.

**Krishna Roy**, Assistant Professor, Symbiosis International (Deemed University) in his research on “History of Computer Education in Indian Schools: Policy Perspectives” studies the policy framework responsible for the introduction of computers in Indian schools. His study found that initially computers were introduced to teach Mathematics and Science-based courses at the secondary and higher secondary level. One of the findings of his study that the computer was introduced to improve the problem-solving ability among students. His studies also found that the major problem was related to infrastructural constraint, quality teachers and non-standardised curriculum.

**Leena Bhattacharya**, PhD Student, Indira Gandhi Institute of Development Research presented her research paper “Learning Levels of Children from Short-Term Migrant Families: Evidence from Rural India”. She studied the learning levels of children from rural short-term migrant families in India and tried to understand if seasonal hostels can retain the learning outcomes of children. Her studies found that as compared to the children from non-migrant families to the children from migrant families, children from resource-rich households perform significantly better than children in resource-poor households. Similar results were found on comparing the children from non-migrant families to the children from migrant families. The children from families having wage or salaried employees exhibit better learning ability than children belonging to families with income sources based on agriculture/allied activities. Seasonal hostels can help to protect children’s right to education and can retain the learning outcomes of children.

In the paper titled “Comparing Technological and Community-Based Enablers of Financial Inclusion in India and China”, **Saakshi Kale**, Sustainability and Social Impact Analyst, Sustainable Square describes that how this “Difficult relationship” can be mended is by viewing support to teachers as a vital complement to traditional accountability measure, followed by how the theoretical promise of teacher support is realised? Her paper brings on an original teacher survey in China and India. The four-component that stood out as the reasons for dissatisfactions with training, for subject contents, method and skills, students and classroom management and parental involvement.

### 3.2 Roundtable - Policy Education in India

**R. Sudarshan**, Dean, Jindal School of Government and Public Policy remarked that there is now realization among different stakeholders that policymaking requires knowledge from various domains and so the process must not be left only to the policymakers. The awareness that government is not knowledge proof and the idea that consultation with experts is required to make effective policies have opened doors for public inclusion in policymaking. With a change in the government’s biased perception of the inclusion of non-government agencies in policymaking, there is greater collaboration, job creation and education (in terms of schools teaching public policy, public management). We need to view public policy also as an intellectual enterprise. Unlike other disciplines where people may have shut themselves in silos, public policy cannot be restricted to one discipline and hence can be called anti-disciplinary. He emphasized the need to get an understanding of all aspects of social sciences and then design the pedagogy to be all-inclusive.

**Amar Patnaik**, Member of Parliament, Rajya Sabha commenced with the basic question to address while designing curriculum in public policy is to understand what does not fall under the discipline of public policy. Courses in India are designed for a particular job (industry-oriented). On the other hand, public policy must be intellectually rigorous in research and design, not just design and implementation. This gap must be addressed

and attended to. Second, there must be a clear distinction between public policy and public management. He also shed light on the fact that context plays a key role in determining the curriculum adopted by an institution. Executive programs in public policy are offered exclusively to be employed individuals. However, the same is not true for Masters' students and therefore the curriculum must be more formalized and interdisciplinary. This can be achieved by designing a course structure that involves multiple disciplines in pedagogy.

**Ashwini Chhatre**, ED, Bharti Institute of Public Policy, ISB talked about ISB's approach in designing courses in public policy. He began by acknowledging that the role of business schools in public policy is not novel and highlighted two aspects of ISB's strategy in designing public policy courses. First, integrating curriculum, pedagogy and faculty development across cohorts has resulted in tangible results because of the dynamic and rapidly growing policy landscape. Second, the development and use of India specific cases with protagonists in India are essential because there are very few case studies in the Indian context that can be used in the class. ISB addresses this challenge by involving students to develop case studies. Since the public policy is a dynamic and rapidly evolving field where specialization in jobs cannot be predicted for 5 years from now, it is important to keep a fluid syllabus and educate faculty.

**Ramesh Ganesan**, Professor, Centre for Public Policy, IIM, Bangalore talked about the dilemmas in public policy education. The first dilemma is that of public management school versus a public policy school. This is important because it determines if the discipline will be hosted in a management school or an economics school. The second dilemma is that there are two markets, government, and non-government. The roles played by a student of public policy are very different in a bureaucracy and corporate. Since bureaucratic jobs are concentrated in the government there is a need for government to internally develop a system of pedagogy in its schools. The solution for these challenges is two-fold. One is to have an option for more electives and two, the inclusion of faculty from diverse disciplines who are interested in public policy.

**Vishal Narain**, Professor, Management Development Institute spoke about the need to develop public policy cases in the Indian context as the existing literature is largely contributed by the West. An innovative pedagogy to adapt to this challenge is to enable students to synthesize the existing literature and see the relevance in the Indian context. Teaching a course like public policy in such ways offers room for curriculum development.

While moderating the session, **R Sudarshan** emphasized the importance of orienting students who come from diverse socio-economic background to communicate effectively with grassroots communities. This is important to remove the mental barriers to the perception of knowledge being centric to textbooks and classrooms. To understand public policy, it is crucial to look at social sciences as a whole and understand its relevance in different domains. Sudarshan said that the curriculum must be designed in a way that balances what people know versus what is being taught.

One of the challenges in public policy is that people are missing in policy design, and hence curriculum must create opportunities outside of the classroom for students to understand public policy. Building on R Sudarshan's points, **Amar Patnaik** insisted on dynamic pedagogy for public policy education as the needs from job market change based on the type of program offered. Therefore, field orientation may not make the learning curve steep for students in executive education because of their experience but is important to include the same in Masters' level courses. Next, he spoke about the need

for public policy specialists in government, non-government and corporate sectors and a consequent need to create job opportunities.

In conclusion, the panel reiterated that we should stop imagining public policy as a discipline. We need to encourage students to take diverse courses in sociology, economics, anthropology, interpretive methods and so on. No two students must take the same combination of courses. We have students with very different capabilities, interests, motivations and that they get a strong foundation in interacting with all stakeholders to push the frontiers not just of knowledge but also of practice. We will not be able to achieve this feat if we limit public policy to a discipline and we must focus on diversifying. Efforts must also be channelled to secure a greater connection between teaching and research in public policy.

## 4. Sub-Theme: Covid 19 Response

Common themes among papers under this sub-theme focussed on the pandemic, unanticipated at the economic level while the response has an evident interface with technology. Smartphones are an example of how technology is being utilized to access the economy and trends in the use of mobile trading apps shows that the pandemic has contributed to the economy while on the other hand there were unemployed trying to find sources income-highlighting how different people navigated the pandemic. Ongoing research on how different applications are being used to empower citizens through information but scepticism about what government will do with the data is something we must address. Further, an opportunity that the pandemic presented in enabling policy and design is also an eye-opener on where we lacked in the utilization of technology over the last few decades. E-governance is an example where we found out where we lacked in terms of technology interacting with the policy sphere. Collaborative efforts among academicians, practitioners, civil society, and government must continue to adapt to technology solutions for the delivery of essential services, schemes, produce new evidence processes and structure across states. The pandemic provided an opportunity to address some of the long-standing issues around distressed migration, however, it is essential to build on the pilot solutions and demonstrate evidence to increase the government involvement in devising policies. On the other hand, it is also important to train communities for better implementation of technology.

### 4.1 Paper Presentation

**Nihit Goyal**, Assistant Professor, TU Delft looked at the policy responses against Covid-19 in his paper “Measuring the Mix’ Of Policy Responses to Covid-19: Comparative Policy Analysis Using Topic Modelling”. The study is closely related to policy mixes, Indices of Policy analysis and Temporal dynamics of Policy mixes. The used topic and structural topic modelling to analyse over 13000 policies in 190 countries. The workflow starts with checking errors → checking errors → identify phrases → lemmatize text → remove unwanted terms → Stem words → select key input to the algorithm. There are 16 phrases that are visibly stood out that includes curfew and lockdown, border restriction information management, quarantine and tracing, government services, non-essential business, public gathering, testing and treatment, physical distancing, education advisory & warning, funding and stimulus, public event, protective equipment, health resources and health screening etc. To summarise there were 16 key types of policy responses to COVID19 across all the nations, India emerged as a country that emphasized authoritative tools. But there was also diversification in the mix, correspondence with global spread and the WHO’s stance with significant variation in the balance of policy mixes.

The larger aim of the paper titled “Public Sector Innovation in Crisis- Evidence from Covid-19” by **Mohnish Kedia**, PhD student, Lee Kuan Yew School of Public Policy is to use the distinction of the challenges that were brought upon on the public sector units. The public sector units were pushed to provide novel solutions for complex problems they have faced during this unique COVID-19 crisis. His finding suggests that governments should work on enhancing their capacity for collaborative, tech-based and centralized development of public sector innovation to better prepare for future crisis. The preliminary policy recommendation was for the Government to look outside for innovation during the time of crisis, which will, in turn, foster an environment within the government that facilitates engagement with external stakeholders.

**Rohit Malhotra**, Assistant Professor, Centre of Excellence in Analytics & Data Science (CoEA&DS) at NMIMS, Mumbai Campus studied covid data (total Cases) and stock market indexes across the top 6 GDP nations (constituting the USA, China, Japan, Germany, UK and India) in his paper titled “Recurring Conditional Moments Analysis Using Covid Epidemic Data and Stock Indexes for Analyzing India’s Performance Among Other Top Six GDP Contributors”. India’s position was compared from the day of the national lockdown i.e., March 2020 along with other top GDP contributors. The methodology employed was based on 50 days of recurring window-based conditional (time-varying) higher moments for analysis and synthesis of pandemic movements and global markets and on a 2-Asset rather two-country specific portfolio. He then analysed India’s position as well as other nations in the sample both in terms of controlling Covid and performance of the stock market for the analytical outcomes that was then used for Policy implications. To summarise, a time-varying financial risk measured at higher moments during the pandemic in the first wave, second wave and so on can be hedged if the roll-over risks are closely monitored.

**Isha Mahajan**, TA cum Analyst, Bharti Institute of Public Policy, ISB and **Aarushi Jain**, Associate Director, Bharti Institute of Public Policy, ISB while discussing the current COVID -19 pandemic stated that technology is at the heart of all the policy responses by governments, especially with e-governance initiatives in the paper titled “E-Governance Initiatives in Response to Covid-19 Crisis-A Case Study Approach”. The presenters described how e-governance initiatives have taken a big leap during the pandemic which previously was variably introduced depending on country and services. E-governance initiatives during the pandemic were taken up for information sharing, awareness generation, essential services etc. Policy responses also used the PPP model which went beyond information sharing and forayed into providing essential services. The case in focus in the paper focused on the Aarogya Setu app which was a Government of India introduced app designed for contact tracing of the COVID-19 pandemic. The app was designed to allow the government, administrators, and citizens to monitor cases, avoiding non-essential travel among other benefits. Examples of similar apps from Brazil, Malaysia, Austria were discussed to show varied responses in different geographies. The Indian government’s Aarogya Setu app was developed in a PPP model in response to the pandemic. It is a Bluetooth based app that is used in contact tracing. It was deemed necessary to take timely steps to avoid the spread of the COVID-19 pandemic. Some of the features include advanced data privacy and scalable architecture, among others. Privacy issues with the app were highlighted when a New York Times article exposed data breaches in the Aarogya Setu app. Data Protection is another issue with the app which collects personal information and location information of users and not having legislation and formal data protection regulations for the app is seen as a major issue. As the paper is still in an exploratory research phase, the authors are reaching out to relevant stakeholders in the government and private players to better understand the functionality and the impact of the application.

**Preet Sidhu**, Student, Punjab Engineering College, Chandigarh and **Rachit Shukla**, Student, Punjab Engineering College, Chandigarh in their paper titled “Impact of The Covid-19 Pandemic on The Indian Domestic Aviation Industry” correlated the change in economy with pandemic wherein COVID 19 has been the first one to hit Indian industry directly, resulting in a 23.9% drop in GDP. The aviation industry is a big contributor to this decline in the GDP because of travel restrictions and other issues that resulted from the pandemic. Seven domestic airlines studied in the paper across 6 cities to provide an overall picture of the impact of the pandemic on the Indian Domestic Aviation Industry.

The authors state that the global aviation industry operates on 4% profits on average. Therefore, making them especially vulnerable to external shocks such as the COVID-19 pandemic. The paper does a comparative study across airlines in different geographies to study the overall impact on the domestic aviation industry. To do the comparative analysis varied data points were considered such as Airline Data like passenger traffic, freight traffic, PLF (passenger load factor) and COVID Data such as total numbers in the sectors. Lastly, government policies such as regulations for traffic control were also considered in the analysis. Results and Discussions include Flight and Passengers in six sectors – 0.03% of passenger travelled from May 2020 to November 2020 who travelled before the shutdown of air travel. PLF remained low for almost all airlines until August 2020 excepting Indigo airlines. Overall GDP decline in India and travel industry one of the worst-hit sectors, a 39% decline. The COVID-19 pandemic brought about significant changes in the operation of flights. The protocol of social distancing led to very low PLF in the airlines for a long time after the resumption of domestic flights. On the financial front, even the leading Indian carriers like INDIGO faced a huge drop in their share prices especially during the last week of March 2020 owing to the lockdown. The government must adopt a fresh perspective on the appropriate policy and regulatory framework, along with the institutional infrastructure of the aviation sector (revamp NCAP). Lastly, most airlines are not designed to absorb shocks such as changing oil prices and bigger crisis such as pandemic will prove disastrous. Government must adopt policies such as the National Aviation Policy to support the industry.

**Radeef Chundakkadan**, Assistant Professor, Indian Institute of Technology, Bhilai describes the paper titled “Small Firms Amidst Covid-19: Financial Constraints and Role of Government Support” as an empirical paper to study the state of SMEs during the pandemic. The authors state that the current pandemic has affected both demand and supply which impacted SMEs making them more financially constrained. The paper studies the efficacy of packages and policies to support SMEs introduced by governments in India. The paper asks questions such as, (i) do financial constraints leads to shutting down; (ii) whether the government supports target the financially vulnerable SMEs; (iii) whether government support helped SMEs during the pandemic. To conduct the analysis the following data was used in the paper – (i) COVID 19 Follow-up Enterprise Survey (CFES); (ii) WBES for firm-specific characteristics; (iii) Merge CFES and WBES using unique id “ifstd”; (iv) “world Governance Indicators” and “Our World in Data” for macro variables; (v) Final sample includes 12, 867 firms from 34 countries. Results: Financially constrained firms are more likely to shut down their operations. Secondly, financially constrained firms more likely to receive government support in terms of cash flow and deferment of payments etc. Further, irrespective of which type of government support, it significantly helps financially constrained SMEs in coping with the pandemic. Lastly, gender bias in layoffs noticed in financially constrained firms.

**Akhilesh KP & Milu Sajy**, Academic Associates, Indian Institute of Management-Kozhikode in their paper titled “Impact of Mobile Trading Platforms in the Indian Stock Market: A Study Among Youth During Covid-19 Pandemic” pointed out that the popularity of using mobile trading apps went up especially, among the youth, during the pandemic. It was stated that the stock market is an alternative stream of attaining financial independence. Advancement in smartphones, the authors mention, has allowed the execution of investment activities in a faster, more flexible, transparent manner and user-friendliness. The authors also describe more advantages of mobile trading apps. The objective of the paper is to, firstly, explore the antecedents of mobile stock trading adoption among young investors in India. Further, to identify there is any change in trade volume in the

Indian stock market during the pandemic and lastly, to study the trend in mobile trading usage during the pandemic. The authors hypothesize that there is no significant difference in trade volume in pandemic time. A total of 250 students on campus were surveyed for the analysis and it was found that 50.4 per cent of the students were using mobile trading apps while the others did not. When the students were asked whether their investment using mobile trading apps during the pandemic period, it was found that 43.2 per cent of the students agreed while 28.8 per cent of the students strongly agreed. The author's analysis found that many people entered the stock market during the pandemic period and using mobile trading apps. Further, there was an increase in mobile trading users in the pandemic period. However, there is no significant difference in trade volume in BSE during, before and after the period of the pandemic.

**Karan Babbar**, PhD Scholar, Indian Institute of Management, Ahmedabad in his research paper "How Covid-19 has Impacted Menstrual Health" intended to study what is the impact of the Covid-19 pandemic on health of menstrual health during the lockdown. His study estimates that some of the menstruators who was not using cloth/rag during pre-lockdown switched to using cloth/rag and some switched to alternative sanitary items. During the lockdown, menstruators faced difficulties of accessibility of sanitary items because of the increase in the cost of sanitary pads and their availability of them. There were inadequate hand wash facilities during the lockdown. Some of the population of the sample faced irregularity in the period for the first time during the lockdown, some reported change in the menstrual cycle (inconsistent flow), some reported impact on menstrual health such as a lot of cramps, thigh pain. Because of a lot of stress during Covid-19 lockdown, it has impacted adversely on a few menstruators of the population (resulted in PCOD). From the policy perspective, there should be some initiatives such as developing robust public health, adolescent education programs, distribution via PDS that can help to mitigate the impact on the menstruators' health.

**Vaishali Singh**, Assistant Professor in Public Policy, Xavier University Bhubaneswar in her research paper "Leveraging Technology for Crisis Response in China: A Policy Perspective" focuses on study how to leverage technology to mitigate the impact during the time of crises. In China, technology played a vital role in response to a pandemic such as crisis containment – the regional situation was monitored with the help of technology. In China, technology was used to share information, basic needs were provided during the lockdown, and re-ignite the economy. Government should take focus on technological advancement.

**Surae Soren**, Assistant Professor, Department of Political Science, University of Delhi in her paper titled "The role of robots in Covid-19 management" explained how Robotics allowed mitigating gender barriers, destigmatizing sanitary work, and provided companionship.

**Chongom Aron Aimol**, Assistant Professor, Department of Political Science, University of Delhi in her paper titled "The Covid-19 Pandemic and Health Technology Transfer: Issues, Challenges and Opportunities" identified and analysed three main objectives: the issue of poor health care facilities in developing countries 2) key challenges for technology transfer 3) key initiatives during a pandemic.

**Vishakha Goyal**, Research Scholar, Sharda University in her paper "Understanding Regional Inequalities in Hand-Washing Behaviour of Indian Households" found that handwashing behaviour has been drastically reduced in the urban areas as compared to

rural even though the use of water and soap is more in the urban areas than in rural. Hand washing using water and the cleansing agent is more prevalent in urban areas. Handwashing behaviour with no water, no soap, no other cleansing agent is more in the rural area.

#### 4.2 Panel Discussion - Analysing the Challenges of Interaction between Technology and Society in the Covid Era

**Arindam Banerjee**, Partner - PDAG while moderating the panel emphasized that there is no better time to take stock of technology that has played an enabling or disabling role in the context of Covid 19 considering society was at the cusp of the year of crisis that hit all strata of society, particular ones at the bottom of the pyramid.

**Johnson Topona**, Regional Head of Programme, Phia Foundation spoke about his experience in providing technology solutions to migration in Jharkhand as a response to Covid-19. His team at PHIA developed a multi-pronged response to the COVID-19 migrant issues. They started a Migrants Helpdesk Platform to work on the following: consolidate data, streamline operations of helpdesk, follow-up, and closure on all recorded calls, monitoring of tasks, generating reports for follow-ups and status reviews and a dashboard and visualizations for facilitating prioritizing and effectiveness. The migrant data collected is used for travel arrangements, fund planning for DBT, relief support through government agencies, relief support in collaboration with NGOs, livelihood options and other initiatives. The key learnings are that the registration of migrant workers is important especially to reach out to in emergencies like a pandemic. Also, social media tools are key for quick outreach. The type of grievances varies from state to state and the government does not have information on the numbers. The effectiveness of DBT needs to be studied for optimization.

**Vibhuti Patel**, Professor, Tata Institute of Social Science talked about the fertile ground provided by social isolation during the pandemic lockdown for violence against children and women. The average complaints registered per day to NCW in 2020 vs 2019 reporting domestic violence, rape/attempt to rape, sexual assault, and the right to live with dignity have gone up owing to the social isolation of women and children. The exclusion of women while designing relief packages (sanitary pads, reproductive health needs and hygiene) exacerbated the maternal deaths and put women in vulnerable situations during the pandemic. There was also an increased incidence of trafficking of women and children. On the other hand, the covid-19 pandemic provided an opportunity for women and children in distress to reach out to government and non-government helplines. The awareness of such redressal systems was not widespread, particularly in minority communities. Even so, there is a need to improve policy and service delivery to address women's struggles to access maternity health services during emergencies like the pandemic.

**Rushil Palavajjhala**, Founder & President, Bandhu Urban Tech spoke on the intersection of technology platform to bridge information asymmetry and change distress migration to aspirational migration. He provided insights on how this is getting contextualized in the Indian context. Workers are constantly in transition and urbanization in India is neither linear nor immediate, but cyclical. 200 million people alternate between rural and urban, chasing jobs and higher wages, while migrant workers face great uncertainty and risk in finding new jobs in a new city. Any worker must go through brokers and contractors who control income, opportunities, and housing facility. Bandhu provided an online medium

by way of an app so that workers can efficiently seek jobs and decent housing. Information on the same is provided through the app and other methods. It was observed in Rushil's research that often marginal workers settle for housing with no facilities and end up incurring more cost than they would in a better housing facility because of additional expenditure to procure basic services. Bandhu has used technology to innovate for migrant workers to aspire for dignity in employment and living.

**Aniket Deogar**, Founder & CEO, Haqdarshak Empowerment Solutions spoke about last-mile delivery and the role that technology can play and how the process can be scaled up using a public-centric method. Based on the organization's experience of working on disseminating information on public schemes to the communities, they identified over 7000 unique schemes in India. There is a need to codify them and provide apps in the local language. There is a constant change in the design, benefits, and eligibility criteria to avail schemes. Also, each state has different eligibility rules and sometimes within the same state as well. He spoke about the three-fold method to address the same: technology, policy, and execution. Covid has been a boom to improve coordination in government systems in delivering services, however, there is a lack of political will to implement technology solutions for delivering the same. There needs to be inter-state operability in welfare schemes implementation and standardizing and identity documents to avail schemes.

### **Discussions and Conclusions**

The panel concluded that technology must see to the end and cannot be the end itself. Collaborative efforts among academicians, practitioners, civil society, and government must continue to adapt to technology solutions for the delivery of essential services, schemes, produce new evidence processes and structure across states. The pandemic provided an opportunity to address some of the long-standing issues around distressed migration, however, it is essential to build on the pilot solutions and demonstrate evidence at the field level to increase the government involvement in devising policies. On the other hand, it is also important to train communities for better implementation of technology.

## 5. Sub Theme: Direct Benefit Transfers (DBT)

The need is for understanding DBT along with its benefits and the overall impact in the Indian context should be holistically evaluated. DBT is citizen-centric and to evolve the process of DBT in India, there is a need for thinking globally and acting locally. The discussions and paper presentations work around exploring if a framework for implementing DBT in India can be developed. Ideas like ranking of districts and states for DBT like Swachh Bharat Rankings were also discussed. Observations pointed towards the challenges of low awareness levels and contextual differences which makes it less possible to have DBT implementation across states so early on.

### 5.1 Paper Presentations

**Drishti Vishwanath**, Research Assistant, Indian Council for Research on International Economic Relations (ICRIER), **Manasi Bhallamudi**, Consultant, Freelance Research and **Venkata Sahiti Kompella**, Senior Executive, Apollo Tele-Health Services in their paper titled “DBT Mechanism on the Existing Institutional Structure of Welfare Delivery” discussed the various discourses around DBT involving middlemen issues, technical glitches, and other implementation gaps. She studied the implementation of DBT for two welfare schemes i.e., MGNREGA and Public Distribution System (PDS). With the two schemes in focus, components like digital interface, fund flow architecture was studied. The paper also showcased the several challenges the beneficiaries face i.e., issues of Information asymmetry, redressal issues, limited points of access. All these issues create problems for the last mile delivery goal especially when there is no face of government at the ground level as found in the study. Moreover, the paper also highlighted important aspects of Transaction Costs which gave rise to questions like if DBT is instantaneous and disintermediated. The hurdles of terrain, transportation, lack of ATMs, biometric failures were mentioned which eventually burdens the beneficiary. In all, as a way forward, some open-ended questions focused around finding solutions for bridging the implementation gap and making the DBT architecture more conducive and decentralised, having single point grievance redressal etc. were asked.

**Ekta Singh**, Assistant Professor, Dr B. R. Ambedkar University in her paper titled “Portability of Benefits: An Alternative to Aadhaar” highlighted the role of Smart cards as an alternative to Aadhaar in PDS. The state of Chhattisgarh where Raipur city (developed district) and Koriya (under-developed district) was studied to present the case. As per findings, smart card portability made more sense to the beneficiaries in an urban area as compared to a rural area. The role of the scheme “Meri Marzi (My Choice)” was highlighted in establishing an alternative to Aadhaar based biometric authentication where beneficiaries were empowered to choose the Fair Price Shops which provided portability support. The technical advancements like the smart ration cards, Annapurna ATMs were the landmark achievements, however, there were issues of technical glitches. In all, the key finding pointed towards giving importance to context specificity for floating portability welfare benefits.

The paper on “The Direct Benefit Transfer Policy Outlook: A Reality Check” by **Deevanshu Shrivastava**, Head, Jagran School of Public Policy and International Affairs reflected the success side of the DBT story with a focus on mapping the journey of DBT and assessing its progress status on the key objectives. The vital component of the DBT i.e., DBT Bharat Portal, DBT Ecosystem, Enablers etc. were highlighted. In totality, with the support of the JAM trinity, 6 key objectives of DBT have been accomplished so far.

## 6. Sub Theme: Digital Identity

AI and cybersecurity lie at the centre of the digital revolution but discussion in the policy spheres regarding its potential applications and interface with international trade is limited. Digital Identity is important for an effective and transparent service delivery system. It plays an important role in the financial sector in reducing money laundering, financial terrorism, and many other illicit financial transactions. Also, it is important to establish industry and academic collaboration to boost R&D in the Big Data domain. The discussions on digital identity and data privacy pinpointed the drawbacks in the current cybersecurity frameworks such as compromise in sovereignty and preference for industry standards and he concluded by providing solutions optimized for developing countries. India is very ambitious in terms of going digital. A big limitation for India in the financial sector to reap the benefits from Digital Identity is that a large part of the population is not yet connected to banks. The financial sector in India is going to be revolutionised in the next decade and protecting our digital identity will be significant for it. This section discusses the different realms of AI and cybersecurity in finance, public policy, and global development. The papers in this section not only focus on Digital Identity but also on Data and Privacy.

### 6.1 Paper Presentations

**Meenakshi Sinha**, Post-doctoral Research Fellow, Banaras Hindu University presented her paper titled “Identity Digitization, Information Governance and Institutional Frameworks”. The author stated that the linkages between identity, privacy, and security. The objective of the paper is to answer the question – How do regulatory frameworks balance considerations of security, privacy and confidentiality of personal data obtained through digitized identity programs. The author starts by asking what is identity digitization? Why should we look at identity? The author firstly differentiates between ‘Right to privacy’ and ‘Right to identity and states that often both are conflated. Identity digitization is described as establishing information about an individual or identification. Further, it is also asserting previously established identity during identification or authentication. The author then talks about privacy as a fundamental right (versus a human right). It is stated that there is no universal notion of privacy: there are only privacies. India ratified the Human Rights convention but since there is no follow-up legislation, it means that while privacy is considered a human right there is no legal right. The author then makes a very important distinction between privacy and data protection – whereas the notion of privacy is not limited to data protection, data protection could be much broader in scope and may apply to several instances of processing of personal data, and even when there is no infringement of privacy.

**Charru Malhotra**, Head of e-Governance and ICT, Indian Institute of Public Administration introduced her paper as a theoretical study titled “Building Citizens’ Trust in Digital World: Personal Data Protection Bill as a Tool in India”. The study was done in a two countries context. The author prefaces her presentation by stating that trust is the most important aspect of any PDP bill and social trust is the most important aspect for any innovation. The interesting question being raised in the presentation is, what is the role of the government in digital transformation and privacy. How to balance the dual interests? It is stated that the more a system becomes mature, the more mature the users become. Increasingly, more and more data are being collected by private companies and governments alike. The paper discusses the pros and cons. The objective of the paper is

to answer the question, how do we proceed with PDP. The author gives a brief description of the evolution of PDP in India. It is stated that the Aadhar case in 2012 is the chief landmark decision. The validity of Aadhar has been under debate since 2012. The second most important step in the evolution is Srikrishna Committee constituted in 2018. The committee report is Citizen focused, but also talked about privacy. What is missing from the committee report is privacy and innovation. All these steps show that there is scope for enhancement of the PDP bill, but time is running out because innovation outpacing privacy regulation in the country. The author then presented a very interesting comparison between the General Data Protection Regulation (GDPR) of the European Union vs PDP bill 2019. The GDPR being a first mover and so set the benchmarks but local context is also important. The authors lastly raised some concerns such as definitions not comprehensive while consent and its various aspects are not considered holistically, and many contradictions exist within the bill regarding consent.

**Rumanu Bhardwaj**, Natural Language Processing Scientist, Indian School of Business, Hyderabad highlighted in the paper, “Developing an Understanding of Privacy Policy Documents of Web and Mobile Apps that rely on Customer Data to Personalize User Experience” how the privacy policy documents of tech companies were analyzed to gain an insight into the accessibility aspects for the end-users in terms of readability, clarity, ambiguity, consent on app permissions etc. In the findings, it was observed that privacy policy documents are differently defined across jurisdictional boundaries. Apart from the differences in the policy documents, the similarity between the different documents was also studied using a similarity matrix.

**Deva Prasad M**, Assistant Professor (Business Law), Indian Institute of Management, Kozhikode presented a paper titled “Non-Personal Data and Public Interest- Envisaging A Robust Policy Framework”. The paper was presented by putting forward research questions. The author asserted that of late, there has been a lot of discussion going on regarding data and personal data issues. The author presented the issue of non-personal data as a dilemma: to be treated as a public good or a community resource? Further, the author contemplated whether the doctrine of public trust could be used for sharing this kind of data. Privacy, data protection and information privacy all different concepts as explained by the author. However, they are all interrelated terms. The author states that Aadhar is an important step towards digital identity and is a foundational identity. The Personal Data Protection Bill 2019 among other things introduces the concept of privacy by design. Privacy by Design being the main concept of the paper several questions were raised by the author in terms of the PDP Bill 2019 – such as, who will bear the costs? Should there be gradations to privacy design standards? and how will privacy as a right will relate to privacy as design entailing transaction costs? And lastly, what will be the challenges of governance in mitigating transactions costs, when required?

## 6.2 Panel Discussion - Digital Identity, Privacy and The Financial Sector

**Arjun Goswami**, Director – Public Policy, Cyril Amarchand Mangaldas while moderating the discussions spoke about the concept of digital identity and data privacy. Digital Identity is a personal identification is preserved by biometric fingerprint and retina. It helps the financial sector in reducing cost sufficiently, helps in bringing inclusiveness, and in the smooth supply of market information.

**Arun Prabhu**, Director – Public Policy, Cyril Amarchand Mangaldas talked of Data Privacy and protection and its importance in the digital world. The Personal Data Protection (PDP)

Bill, 2019 added a 'consent-based mechanism' which says a person's consent is necessary for sharing any personal data. This consent needs to be free, fair, informative, and revocable. National Data Protection Authority will also work as a regulator for data privacy and protection.

**Anu Tiwari**, Partner – Public Policy, Cyril Amarchand Mangaldas, highlighted that before the implementation of the AADHAR card system, documents like ration cards, BPL cards, electricity bills etc. were used as KYC for service delivery and other purposes. AADHAR came into force with the AADHAR Act, 2016 and serves as one of the key documents for KYC at present. Further, demonetisation helps in developing e-KYC and AADHAR is used as a digital identity.

**Thomas Abell**, Chief, ADB's Digital Technology for Development Unit focussed on India as a country, that is very ambitious in terms of going digital. Aadhar has revolutionised the field of digital identity. It is used as e-KYC in financial and other sectors. e-KYC has a larger role in social security which has further implications on social benefits. In the financial sector, data protection is high, as RBI works as a regulatory authority in this area. Three major areas are touched upon which include Digital Identity, KYC and Digital Privacy.

On the whole, the panel concluded that Digital Identity is important for an effective and transparent service delivery system. It plays an important role in the financial sector in reducing money laundering, financial terrorism, and many other illicit financial transactions. A big limitation in India for the financial sector to get benefits from Digital Identity is that a large part of the population is not connected to banks.

## 6.2 Panel Discussion - Role of PDP And Non-PDP Bills: Balancing the Triad of Citizen's Digital Identity, Big Tech and Government

**Charru Malhotra**, Head of e-Governance and ICT, Indian Institute of Public Administration commenced the session by briefly discussing the history of data privacy in India. Data Privacy in the IT Act was only defined loosely. However, as the significance of data expanded, discussions around it began. The right to Privacy was declared as a fundamental right in India under Art. 21 of the constitution, which was a breakthrough for privacy in India. The nuclei of focus for privacy remains the citizen, which is both the weakest and the strongest link in the chain.

**Advait Pelapu**, Journalist, MediaNama emphasized that digital right was as important as any other right in today's age. In India, there had been a market failure to regulate big techs concerning their data collection. The PDP Bill has answers to questions such as procurement and handling of data. However, questions such as how citizens will give consent for data sharing to various agencies still loom. He also brought forward the fact that citizens should be able to reap the benefits of the monetization of their data.

**Anushka Bhilwar**, Student, University of Stirling talked about the significance of data in the times we are living in, and the risks of it being breached by the hand of the government or the big techs. Data protection is therefore the need of the hour. India has now formulated its data privacy law, which pertains to personal and non-personal data. There is a need for balancing the triad of digital identity, big-tech, and the government.

**Gulshan Rai**, Former National Cyber Security Coordinator who was part of the drafting committee spoke about the IT Act, 2000. This act had some bullets on citizens privacy, but as technology was only at a nascent stage, the only purpose those bullets served was to prevent data leakage. Data privacy and leakage of data was a far larger issue now. He emphasized the lack of privacy culture in India which will lead to challenges in the implementation of PDP. Although the JPC will surely keep the checks and balances.

**Lovneesh Chanana**, Vice President and Head of Government Affairs, SAP brought in a combination of industry and policy perspective. He emphasized the evolving nature of privacy concerns and associated policy measures and further added that farsightedness was necessary for this area. Further, the PDP Bill is bound to impact big-techs, their business models and the way they monetize data. Creating awareness for stakeholders involved was found to be a necessity to ensure the right framework for industry and citizens.

**Rajendra Kumar**, Additional Secretary, Ministry of Electronics & Information Technology (MeitY), Government of India embarked with the question of whether PDP might be able to mitigate data privacy risks. PDP is the first comprehensive attempt to put privacy in the digital world, considering the experiences of countries across the globe. He emphasized that privacy needs a strong legal foundation, and that data should be handled in a responsible and accountable manner. It is then that people will be able to have the right to their data, backed with strong legal principles.

The session concluded by pointing out the necessity of checks and balances of digital hegemony. Further, the need for a multi-stakeholder collaboration was emphasized upon, with a convergence of frameworks of academia, policymakers, and think-tanks. Nevertheless, privacy policy, being an evolving discipline has the potential of creating various nuances with time, while will be addressed as per the need.

## 7. Sub-Theme: Financial Inclusion

During the Covid scenario, each mile counts, until we reach the last miles, and the poorest population of the country is covered through mobilising digital payments as a part of financial inclusion policies.

### 7.1 Paper Presentations

Financial inclusions and technological advancement required to bring forth the economic development of the underprivileged people.

In the paper on “Financial Inclusion: A Step Towards Cashless and Digital Economy”, **Jyoti Sharma**, Lecturer, Govt. Degree College, Udhampur (J&K) studied a world bank survey that delineated that more than half of India’s population is financially excluded. By using secondary data and PMJDY data change in growth for Digital payments have been determined. Thereafter, the comparisons through ICT accounts and Business accounts in terms of volume, while all of us observed the payment volume has grown digitally especially during the pandemic situation. Such is a case of Indian post, that has set an example of availability and affordability for the rural population.

**Sai Kiran**, Student, VNR Vignana Jyothi Institute of Engineering & Technology started his presentation with how can implementing Credit Default Swaps be beneficial for the Indian Banking System to curb the growing NPA in the system in his paper titled “Impact Of ‘Credit Default Swaps’ on Financial Efficiency and Asset Prices”. Additionally, it would safeguard both the banker and depositors like an insurance payment. This will also benefit the investors as the new asset class would be available to them, which can be incorporated as a part of their portfolio. It is a building step for the Reserve Bank of India to finalise the operational framework for the introduction of Over Counter single-name CDSs’ for Corporate Bonds in India. For instance, the Green Energy companies where the probability of defaulting a loan is very high and in those cases the banks require a third-party guarantor, so that even if the probability of default is very high but the default risk is covered towards financial marginalisation.

In the research paper “Business Correspondence Model of Financial Inclusion: A Multi-Stakeholder Perspective in India” **Shigufta Uzma**, Associate Professor, National Institute of Technology and **Suvendu Pratihari**, Research Associate, Indian Institute of Management, Ahmedabad study how different stakeholders (it can be the bankers, regulators, or policy regulators) perceive the role and performance of the BC model of financial inclusion drive in the context of India specifically in Odisha. The study intends to analyse the purpose and policy perspective of the BC model. The qualitative analysis on the data found that the major purpose of the BC model of financial inclusions is market penetration, decreasing the operation cost, channelizing infrastructure especially in unbanked areas, social factors such as financial security and rural employment. The policy perspective of the findings is the recruitment of CBCs and BCs/CSPs. The study also identified the operational challenges in the BC model such as transparency issues, lack of coordination among the bank staff, etc.

**Sanal Gupta**, Doctoral fellow, Indian Institute of Technology, Mandi and **Puran Singh**, Assistant Professor, Indian Institute of Technology, Mandi in their research “Factors Affecting Rural Banking Agents’ Intention to Continue” focus on identifying and analyzing the predictors of banking Agents’ intention to continue his banking operations. This can help in reducing dormancy and making the agent banking model more lucrative for

agents in the banking system. The preliminary findings are agents' technical acumen and tech support system, social incentives, the role of the base branch, training on product and sale tactics, agents' additional occupation, targets based on location, all these factors may work better in shaping their intention to continue. They estimate that younger agents are more likely to continue their operations. The agents who said they require training for the sale of the product are motivated to work better. Exposure to technology like the use of payment apps makes agents perform better. Commission, target-based incentive, hardware and software support, and staff behaviour also play important role in continuing their intention.

**Adrija Das**, Research Scholar, Central University of South Bihar, Dept of Development Studies in her research "Financial Inclusion Services in Rural Bihar: Is Technology the Driving Factor Behind Rural Development Policies" intend to study how technology has benefitted the user population and difficulties people face to use the technology because of illiteracy to use it. Major findings are it is essential to invest in capacity building, provide financial literacy and give people training to take advantage of the technology available to facilitate their life. Skill enhancement for girls and women and make them aware of the technology available and how to use it is need for an hour for socio-economic development. Government should take initiative through schemes to facilitate peoples' access to credit and technology. The financial institution managers and inclusions need to take part in informal sector activities to gain the trust of the people, especially, in the rural areas. To encourage women's entrepreneurial prowess, they should be able to access the larger markets, and one of the approaches is by e-linking the household enterprise of women to the larger markets.

**Navdeep Kaur**, Research Scholar, Indian Institute of Technology, Mandi and **Puran Singh**, Assistant Professor, Indian Institute of Technology, Mandi in their studies "Role of Banking Agents in Spreading Financial Literacy in Rural Areas" found that Banking agents' financial literacy and their motivation plays vital role spreading financial literacy among the population. Especially in developing financial literacy among the marginalized population, these banking agents play a crucial role. Customers' exposure to banking facilities and their visits to the bank affect financial literacy. In their study, technological exposure does not have a significant impact on financial literacy. Whereas the education and income of the customer have a direct impact on their financial literacy.

BC model can be effective in some of the exercises that took places such as providing education and training to the bank staff, make them realize their role and responsibilities, implementing effective governance and operation, taking motivational initiatives like giving remuneration, building technology and infrastructure. Banking agents' technical acumen and tech support system, social incentives, the role of the base branch, training on product and sale tactics, agents' additional occupation, targets based on location, staff behaviour motivate bank agents to continue their banking operations. In addition to technology and infrastructure building, capacity building and skill enhancement scheme to make aware of technology among underprivileged people and women are necessary.

In the paper titled, "Impact of Financial Access on Gender Gap in Entrepreneurship and Financial Inclusion: Evidence from India", **Sandhya Garg**, PhD Student, Institute of Economic Growth and **Samarth Gupta**, Associate Fellow, National Council of Applied Economics Research aim to find whether bank proximity increases financial inclusion and entrepreneurship of women in India. The paper uses the RBI Directory of bank branches with the date of opening and location, and GIS mapping of villages as per population Census 2011. The author has used difference-in-difference estimation technique with a

control group (unbanked villages which did not have a bank branch within 5km in 1998,2005 and 2013) and treatment group (unbanked villages which did not have bank branch within 5 km in 1998, 2005 but a new branch was opened within 5km in between 2006 and 2013. The paper concludes that there has been an improvement in the financial inclusion of women.

**Rukmini Bhattacharjee**, Assistant Professor, Amity University, Kolkata in the paper titled, “Technology-Driven Financial Inclusion of Women” carries out a qualitative study that talks about how financial inclusion can make women economically and financially empowered. The paper also emphasises how bringing women into the mainstream economy through financial inclusion can potentially lead to growth. It also elaborates the factors currently hindering the access of banking services to women specifically for rural women.

## 7.2 Panel Discussion - Financial Inclusion Enabled by Technology Advances & Cybersecurity: Policy & Regulation

The moderator, **Chiragra Chakrabarty**, CEO, KATIC Consulting Ltd. began with defining financial inclusion as a process that will ensure access to appropriate financial products and services needed by all sections of society. He pinpointed that the process needs to be developed and nurtured for which policies and regulations are required. He propounded that it “belongs to all”- credit for all, saving for all, capital for all, investment for all and financial markets for all. He also showcased cross country comparison from IMF data on various financial inclusion parameters and observed that saving and credit are less preferred as compared to mobile money. Investment, technology, and awareness programmes backed by policy and regulations are required for the development of financial inclusion as a process. He further emphasised three major challenges in financial inclusion viz- the non-uniformity in regulations related to cloud-based services, lack of clarity in the guidelines about data collection, data sharing and data management and third on cybersecurity risk management, guidelines and regulations coming from the central bank for financial inclusion.

**Subodh Mathur**, the Economist, discussed savings going down and mobile money payment going up and how the capital formation is happening. He laid down that financial inclusion is having two aspects-one, convenience, and efficiency like digital payments and second, economic growth. He emphasized that India is not going to witness economic growth with the current system. He further pinpointed that loans for SMEs and MSMEs from commercial banks are declining because NPAs have gone up. He inferred that without a debt facility the expansion of SMEs and MSMEs is difficult which further hampers their ability to create more jobs leading to economic growth.

**Badri Narayanan Gopalakrishnan**, Director, Infinite Sum Modelling LLC responded to Financial inclusion, overall economic growth and access to markets and will enhancement in financial inclusion through technology reduce inequalities in income distribution? He emphasized that financial inclusion is financial and income security. He also referred to IMF data on financial inclusion stating that there is more and more engagement of population with the financial sector but raised the critical question that how much of the benefits the poorer and vulnerable sections of the society can reap out of the greater access and greater inclusion in the mainstream. He also pinpointed the advantages of blockchain technology and cryptocurrencies in financial inclusion, especially in the Covid-19 times.

**Anupam Agarwal**, Chairman, India Internet Foundation while discussing Cybersecurity and risk management in Fintech began the discussion on cybersecurity and risk management from an organizational perspective which are trying to give the financial transactions an ecosystem. He stated if the due diligence is not given to cybersecurity in these organizations, then the risk of trust is created among the people using the financial ecosystem vis-à-vis data breach or rumour of data breach. This in turn puts the responsibility among the organizations to ensure their system is robust and highly secured. The other risks stated by him were that of system outage and denial of service attack. Lastly, he emphasized reasonably good cybersecurity practices be adopted by organizations to make the ecosystems reliable and secure.

In conclusion, Digital infrastructure is not steady, powerful, and resilient and up to date enough in India. We have the digital infrastructure that is essentially called “Jugaad” which is not ready for a scale-up. The problem is not about the capabilities, but the lack of security given to the people who are trying to innovate. Few suggestions to create a robust digital infrastructure are creating an infrastructure for product liability insurance to encourage the development of cybersecurity products and state sponsorships for ITC standardizations. Fintech awareness will never work from a top-down approach. People will learn from their mistakes. Awareness can only come from educating the smart users and let them be the guides for the rest of the families.

### 7.3 Panel Discussion - Financial Inclusion using Technology: Policy and Regulation

**Chiragra Chakrabarty**, CEO, KATIC Consulting Ltd. began the discussion by emphasizing that Financial inclusion is a process to access financial products for all section of society. It means credit, savings, and capital to all. Economic growth and convenience are two objectives of financial inclusion. The evolution of technology makes the inclusion process rapid and efficient. However, there is a need for regulation of technology.

**Arun Tawde**, Certified Executive Coach, KATIC Consulting said that technology has revolutionised the financial sector in India. UPI is a major development in the process. Both BHIM and USSP are two important applications in the growth of financial inclusion in the urban and rural sector. However, there is a need to remove fear from people’s mind, both in rural and urban areas. There is a need for government and private sector initiatives including CSR activity to spread awareness.

**Ganesh Kumar Munnorcode**, Visiting Faculty, Kirit P Mehta School of Law focussed on the positive correlation between the use of technology and financial inclusion. AI has a larger role in the growth of the agriculture sector. In Rangareddy districts, farmers can see the type and growth of pests in cotton through a mobile app which helps them to take preventive measures. Pest is one of the reasons for farmers’ suicide. AI helped in breaking that cycle.

**Krishnakumar Subramanian**, Freelance Business Consultant spoke about Digital technology and how it has revolutionised the growth of the financial sector in three areas such as banking, insurance, and payment. Jan Dhan account is linked to Aadhar by which people are directly participating in the service delivery system. A lot of financial services are available without physical communication. Insurance products are purchased online, and payments are using UPI.

**Kshitiz Prasad**, AVP – Research, Maybank Kim Eng Securities India Pvt Ltd. said that Large income disparities come in the way of financial inclusion. We have a larger share of the un-banked population. There is a need to bring the lower-income class to the mainstream. Micro finance has revolutionised the financial sector in Bangladesh and contributed a bigger role in financial inclusion. PM Jan Dhan Yojana, 2014 has contributed to financial inclusion in India.

In conclusion, the removal of fear and apprehensions is an important factor in financial inclusion. There is a negative correlation between technology and financial risk. India is pretty much leading on the front of developing payment infrastructure. National Payment Corporation Ltd. is responsible for developing payment infrastructure in the country. Looking at the growth of payment, RBI is thinking to set up another NPCL in the country. There is a need for investment for continuous up-gradation in technology.

## 8. Sub Theme: Sustainable Development

### 8.1 Sustainability

Technology can help in attending equity in sustainable development. Promoting renewable energy and using recycled water are some of the important aspects which are adopted in many countries. Further, adopting climate-friendly and energy-efficient technologies, developing technology for improving food production and mostly organic are some other priority areas to attend sustainability. India's economic growth in the past has not addressed the fundamental issues of human development. India has remained a constant underperformer in Human Development Index. Growth has been ruthless and rootless. Growth has not created many jobs. Growth has less trickle-down effect and inequality has gone up. The public spending on the development indicators including education and health is quite less. Investment in human capital and sustainable development goals are a priority for every country. Tremendous changes are leading to many uncertainties, volatility, complexity, and ambiguity. Focus on socio-economic development or inclusive development is a need of the world and is a common underlying goal of all the papers and discussions conducted under this theme.

#### 8.1.1 Paper Presentations

**Rahul Gossain**, Marketing Communications; and Delhi Region BD, Cyril Amarchand Mangaldas presented his paper titled, "Should India Shift to Compliance-Based Sustainability Reporting?" by setting the context in terms of the fundamental dichotomy between the international sustainability scenario and the Indian policymaker's perspective. While Internationally climate strategies are seen to offer a route to global supremacy. Indian perspective believes that the proposed compliance-based sustainability reporting gain acceptability and credence among global frameworks so that it serves as the primary document for assessment of the business. The author then goes on to trace the evolution of issues in India starting with the country following the disclosure-based sustainability reporting framework which is essentially non-quantifiable to enterprises seeking international capital and customers and so needs appropriate aligning. The authors then presented a complex network diagram on the global ESG dynamic and India's role therein. The main research question posed by the paper is should India shift to a compliance-based sustainable business reporting framework? The contribution of the paper is to assess the adequacy of India's sustainability reporting framework in terms of need, relevance to the present risk of non-alignment with international standards. The paper concludes that there are several policy alternatives such as maintaining the regulatory status quo while expanding scope. Alternatively, an immediate shift to compliance-based reporting by integration with EU taxonomy can be considered. Lastly, a guided time-bound transition to compliance-based reporting can also be considered. The author closes the presentation by saying that given the rapid pace of transition, it is in the long-term and larger interest of the country (government, public, private, and developmental entities) that India immediately shifts from its current GRI derived BRR framework.

**Aarushi Jain**, Associate Director, Bharti Institute of Public Policy, ISB and **Sridhar Kundu**, Sr Research Analyst, Bharti Institute of Public Policy, ISB presented the paper "Corporate Social Responsibility and Regional Disparity: An Effort Towards Inclusive and Sustainable Developmental Policy" that analysed the structure of CSR spending in terms of volume

and direction and how effective CSR spending could be to bridge the regional disparity gap. The authors use the Barro Regression model to bring about and visualise the state and district wise gap and unequal CSR spending. The paper prescribes that regional disparity should be minimised as a national priority using CSR as an instrument leading to better policy development to achieve sustainability goals.

Paper on “Financial Incentives to Promote Sustainable Greenhouse Technology: A Case Study of Rajasthan” by **Neha Sehra**, PhD Scholar, Jawaharlal Nehru University intends to study how the various incentives provided for greenhouse technology in Rajasthan has led to increased adoption of this technology. The paper tries to understand the major financial incentives that play an important role in promoting technology in Begas, Baseri and Gurha Kumvatan villages of Jaipur district. It also aims to identify the level of adoption after financial incentives through the National Horticulture Mission. The data reveals that the number of greenhouses installed has increased due to different incentives like subsidies, credit facilities, low-interest bank loans and rewards and recognition, support technology as incentive and grants.

**Shreya Biswas**, Assistant Professor, BITS Pilani, Hyderabad Campus in the paper titled “Ownership Status and Housing Quality in Urban India” aims to analyse whether homeownership is associated with an increase in all attributes of housing. The results are based on survey studies in the context of few urban areas. The paper also examines whether homeownership causes higher housing consumption in urban India using nationally representative data. The paper uses the OLS method and concludes that homeownership in India is not associated with all-around housing improvement.

**Bhaskara Rao Mulam**, Visiting Professor, Rajiv Gandhi University of Knowledge Technologies elaborates in his paper titled “Technology and Policy options through Good Governance Initiatives and Disaster Resilient Infrastructure in India for Achieving Sustainable Development Goals” about the development of disaster-resilient infrastructure and how technological advancements add value to it. The author emphasised the use of the Sendai framework for disaster risk reduction. The author concluded that the increased frequency and intensity of disasters in India has forced the governments to realise the importance of effective disaster risk resilience through technology.

**Tanvir Aeijaz**, Associate Professor, the University of Delhi in his paper titled “On the Question of Discursive Turn in Policy Analysis” emphasized why policy analysis requires focusing on language used in policy documents, interactional processes, hierarchical levels, which is very cultural and contextual. He further propounded that public policy essentially belongs to social sciences, which is interdisciplinary and transdisciplinary at times. The speaker also emphasized that policy analysis is a craft, an applied social scientific activity but not technical science. He also suggested that a policy analyst has to understand or explain the impact of the anticipated policy on the target group.

**Umang Pathak**, Founder, ESG Advisory Services talked in the light of global developments on sustainability in India in post covid momentum in her paper titled “Policy Dynamics: Sustainability and Start-Ups in India”. She propounded that businesses have a key role in achieving SDG and create innovative solutions and products to resolve the problems of the world. As per the speaker, sustainability is a way of doing business and be mindful of your business impact on planets and people not only on a moral high ground but from a long-term view of profitability. She concluded that sustainability is not a compliance

issue, but it is about how the business is done and recommended a holistic approach to policy and regulatory changes when sustainability is concerned.

**Maynor Cabrera**, Director of Projects, CEQ Institute, The University of Tulane in his paper “Fiscal Policies in India: Towards Attaining Sustainable Development Goals” elaborated his methodology of CEQ (Commitment to Equity) assessment used to answer his research questions and discussed his findings. He concluded by stating that government plays an instrumental role in economic development and stressed that with limited resources, fiscal policies are designed to reallocate resources to benefit the people at the bottom of the pyramid and as a result, it helps in reducing the income gaps.

### 8.1.2 Panel Discussion - Sustainable Development - A Confluence of Environment, Ethics, Equity & Technology

**Pankaj Bajaj**, CEO, Bajaj Industries Pvt. Ltd. posed questions like how to reduce inequality? Can it be through punishing the capitalist or by serving the poor? It is the poor who bears the most brunt of environmental degradation. People near the sea are badly affected by the sea level rising and other effects of global warming. The use of better technology and both governments and the private sector collectively financing the development of technology are crucial for sustainable development.

**Badri Narayan Gopalakrishnan**, Director, Infinite Sum Modelling LLC discussed the rising inequality gap is rising between countries and within a country the gap between poor and rich. There is less access to resources by the people at the bottom of the pyramid. The digital economy is growing, but the physical economy is slowing down. The impoverished, deprived and illiterate are less benefitted from the digital economy.

**Subodh Mathur**, an Economist, commented that apart from income inequality, wealth inequality is the long- term driver of inequality. The use of nature for the cause of rising income and growth has a negative impact on the next generation. Polluters need to pay for the harm they do (Polluter pays principle). To make growth equitable and sustainable, three important things to be taken care of – technology, better awareness, and financing of technology,

**Chiragra Chakrabarty**, CEO, KATIC Consulting Ltd. observed that to adopt new technologies in the direction of sustainable development, financing plays an important role. Few areas can be explored such as the issue of SDG linked bonds, Green Bonds which could provide long term finance. A strategy such as increasing SLR by 2% could help in obtaining finances for this purpose.

**Aditi Aggarwal**, Company CEO, StickyPins Inc. opined that awareness plays an important role in achieving sustainable development. People should be aware of their rights. Technology and connectivity can help in empowering people. Promoting social good by harnessing the power of social media is the way to attend sustainable development.

**Roshan Miranda**, Co-Founder & Director, Waste Ventures India Private Limited. strongly promotes the idea that re-use and Recycling of waste are important factors in the direction of sustainability. Plastic credits can be used as an instrument for encouraging and financing sustainable practices. Our behaviour should be environment friendly. Waste pickers play an important role in the direction of the cleaning environment and they should be paid properly.

### 8.1.3 Panel Discussion - India's Economic Slowdown and Sustainable Development Goals

**R. Sudarshan**, Dean, Jindal School of Government and Public Policy, JGU spoke that India's economic growth in the past has not addressed the fundamental issues of human development. India has remained a constant under performer in Human Development Index. Growth has been ruthless and rootless. Growth has not created many jobs. Growth has less trickle-down effect and inequality has gone up. The public spending on the development indicators including education and health is quite less.

**Rajeev Malhotra**, Professor, Jindal School of Government and Public Policy emphasised that the Indian economy has witnessed a slowdown because of the pandemic. Some of the policy led shocks during this time has dislocated the economic activities. Policies are designed to attend to the short-term recovery ignoring medium- and long-term goals. Macro-economic policies should not only concentrate on growth. Jobless growth is a danger to the economy.

**Indranil Mukhopadhyay**, Associate Professor, OP Jindal Global University commented on the vaccination status and issues during the Covid-19 global pandemic. There is a need for global cooperation to fight out this pandemic. The vaccine has been developed in few countries, but its access to all has raised many questions. There are global inequalities in access to the covid vaccine. The richer countries can purchase it at a higher price whereas the poorer ones stand back in the queue. In India, the principle of exclusion and rural-urban division may be a barrier in the direction of vaccination.

**Kaveri Haritas**, Associate Professor and Associate Dean (International Affairs), Jindal School of Government & Public Policy, OP Jindal Global seconded that jobless growth is a key concern in India. There is a decrease in the growth of formal employment in the last decade. Structural changes in the economy with a lesser share in the manufacturing sector has led to the creation of minimum employment opportunities. The rise in labour supply in the country has been captured in the informal sector. Growth in contractual jobs has increased.

In conclusion, to make growth inclusive and sustainable, public spending should rise. However, the government has limited resources to spend. Tax is not generating enough revenue and for keeping fiscal deficit within a limited bracket, the spending is curtailed in many sectors. There is a need to broaden the tax base and discover new areas of revenue generation which would help in investment and capital formation.

## 8.2 Climate Action

Climate, environment, and ecology are diverse yet quite interrelated subjects of study. Climate Change is largely a global, macro-level phenomenon and interventions in climate require international level cooperation and intervention. Environment and ecology are relatively more micro level and require more nation or region-specific interventions. The connections between these three are crucial and the inter-linkages need to be found. The awareness level of the general population is abysmal with regards to their surroundings, their environment and the policies that affect them. Thus, making people aware is a critical role and is the first step towards making the climate, environment, and ecology in harmony with human life. People's growing trust in social media and lack of trust in the government's channels of dispersing information as a source of information is an issue of concern today.

### 8.2.1 Paper Presentations

**Rajkishore Sahu**, Research Scholar, Berhampur University presented a paper titled "A Study on Awareness and Treatment of Biomedical Waste for A Sustainable Environment". Man's living in the state of nature, in harmony with the environment, changed after the advent of the Industrial Revolution. Biomedical waste (BMW) has huge implications on the environment and contributes to soil, air and water pollution. The paper focused on finding out the awareness level of people with regards to biomedical waste management through a primary survey that included the medical fraternity and the general population. It was found that there was a poor practice of BMW management, thus exposing people to health and environmental hazard and mega-cities were at the greatest risk. Knowledge regarding BMW was found to be limited to medical and paramedical staff. Surveillance, monitoring, and penal action combined with awareness campaigns is the need of the hour.

**Bhavya Katyal**, Research Scholar, Tata Institute of Social Science, Mumbai presented a paper titled "An Analysis of Youth's Attitude and Risk Perception Towards Climate Change". There is a strong interconnection between climate and youth as youth forms 19.1% of the country's population and are amongst the most significant stakeholders in climate change and its related policies. A primary survey was conducted in college campuses in Delhi-NCR, the most affected region due to environmental issues and survey results were discussed. It was found that more than 90% of respondents find a human activity as the largest cause of environmental pollution and more than 50% of respondents regard climate change as a major factor affecting their life. For tackling the issue of climate change, awareness, government, and international intervention, and taking advantage of diversity in thoughts, knowledge, and experiences of people were critical.

**Medusmita Borthakur**, PhD Scholar, Tata Institute of Social Science, Mumbai presented a paper titled "Environmental Security Policy in The Baghjan Blowout". The blowout was a major natural gas inferno that led to an ecological disaster. The disaster affected all livelihoods of Bhagjan *i.e.*, farming, fishing, and labour. Soil quality has been majorly affected, leaving land un-cultivable for years. Further, marine life has ceased to exist affecting livelihoods and source of food for the community. Environmental policies such as the Environment Protection Act had not been implemented due to resource shortages. An environmental impact assessment was not carried out before the project started,

which was a major lapse and factor leading to such a disaster. Environment Policy must be implemented efficiently so that such man-made disasters can be prevented.

**Bharti Nandwani**, Assistant Professor of Economics, Indira Gandhi Institute of Development Research paper titled “Community Forestry and its Implications for Land Related Disputes: Evidence from India” aimed to study the legislative reform of the Forest Rights Act of 2008 that provided property rights on forest lands to traditional forest dwellers. It aims to study whether FRA has been successful in reducing the land disputes with the data from Land Conflict Watch, newspapers articles etc. at the Gram Sabha level. The findings suggested that however before 2008 there was high forest cover under a high number of disputes, post the reform the legal ambiguity increased because of other existing conservational laws. All this coupled with implementation challenges led to increased land disputes. As a way ahead, the paper suggested that there is scope to learn from countries like Thailand about community forestry.

**Vaishali Singh**, Assistant Professor in Public Policy, Xavier University Bhubaneswar in her paper titled “Public Policy and Eco-Innovation Gap in India: Learning from the Chinese Case” spoke about public policy and the eco-innovation gap how the Chinese have been doing this and what policy lessons it holds for India. According to her eco-innovation is looking at the patterns of products and services throughout their life cycle i.e., from production to consumption that helps in protecting the environment. She propounded that technological interventions could help the environment without compromising industrial growth.

**Pankaj Kumar Jha**, Assistant Professor, Motilal Nehru, DU in his paper titled “From Flood Control to Flood Management – A Paradigm Shift in the Flood Policy of the State in India” studied the changing approach to flood control in India. In the early 1950s and 1960s, embankment of rivers and building up of multi-purpose dams was the strategy. National Flood Commission, 1980 and National Water Policy 1987 and 2002 and further, NDMA Act 2005 and 2009 gave more importance to flood forecasting and some other non-structural measures such as disaster management, growing crops resistant to floods etc.

**Vinayak Tripathi**, Assistant Professor, IMT Ghaziabad presented in his paper titled “Media Constructions: Sensing and Governing Environment” studied the media portrayal of construction companies as contributors to environmental pollution. The authors argue that the lockdown which essentially brought the construction sector to a standstill did not alleviate any of the environmental issues that the media attributes to the construction sector. The authors say that considering how the environment is a mainstream issue it also begs attention on how media portrays the issue. Images from Delhi NCR shown in the presentation where rapid urbanization is shown, and consequential pollution caused. The study is based on work in the development of air pollution control measures and their influence on construction activity in Delhi Capital Region, India after 2014. Data was collected from over 300 newspaper articles, archives, press releases of government concerned and court rulings. The authors argue that the media construct of ‘construction activity is evil’ can be found in a lot of instances. The authors cite the example of AQI as an interpretive tool to fix the ‘problem’. Media has played a large role in mainstreaming AQI as the definitive measure of air pollution while traditionally air quality status has been reported through voluminous data. The authors further argue that in the newspaper articles they found frame and frameshifts in the early discourse on environmentalism. To conclude, the authors state that in transitioning fields - frame shifts occur around

interpretations and technologies. And lastly, moving from monitoring to more network-based institutional actors - reconfiguring the field.

**Abhishek Handa**, PhD Research Scholar, Department of Political Science, University of Delhi works on medicinal plants and traditional knowledge of using them for curing various diseases, popularly known as 'intellectual commons' are not given adequate protection. In his paper titled, "Knowledge, Market and Collectors of Medicinal Plants in India: The Production of Discourse of the Politics and Policy of the State", he highlighted that studies found that they are commercially overexploited by corporate and business houses. The local collectors are not properly paid. DN Tiwari Committee (2000) and National Plant Board (2008) addressed some issues related to the sustainable development of these plants. However, more need to be done in quality development and protection of collectors.

### 8.2.2 Roundtable - What do policymakers want from studies from Water and Climate Change? Challenges and Constraints for Government

**Parameswaran Iyer**, Chair, World Bank focused on the significance of an evidence-based approach for policy formulation. As more than 60% of the population in India lives in water-scarce areas, water becomes a crucial resource. Water usage also varies according to different agro-climatic regions, therefore there is a need to learn from people for policy formulation. A nexus and causality exist between water and climate. There is a need to listen to voices from the ground and adopt local water conservation measures. It is these studies from the ground which will lead the path to sustainability.

**Adarsh Singh**, Government of Uttar Pradesh, discussed his experience of Barabanki in U.P., a region that is fertile, but the water table is inconsistent within the district. The challenge to bring together all stakeholder departments of the government such as agriculture, forest, rural development often delays policy implementation. He emphasized that a single strategy is not feasible or suitable even within a district and decentralized policies should come to the forefront. Furthermore, involving people and creating a behavioural change among them will bring a structural shift and make it easier for policies to be successful.

**D. Krishna Bhaskar**, Govt of India discussed the nonlinear results of groundwater increase and preservation policy interventions he had been a part of. Policy interventions sometimes do not give immediate results but pursuing them efficiently may lead to a structural shift. The behavioural aspect of people also needs to be understood to solve dilemmas such as the increase in the groundwater level leads to people increasingly producing water-heavy crops such as paddy and cotton. He also emphasized that decentralized projects were much more effective at the ground level compared to the large ones.

**T Arun**, Govt of Puducherry, shared his experience of restoring water bodies in Puducherry. Through an intensive survey of revenue records of each district, water bodies were identified and surveyed. By mobilizing resources, water bodies were restored. This led to huge encouragement among people, who also started adopting water bodies. This also led to a reduction in dependence on groundwater, leading to a rise in groundwater level. Involving the local community was found to be crucial.

**V K Madhavan**, WaterAid India, with his wide experience focused on the larger picture of water conservation, involving demand and supply sides of the water. He emphasized that the impact of climate change falls on the poor the most, as they have poor coping mechanisms. Mitigation for them is difficult due to resource constraint and dependence on common property resources. There is also a paucity of good quality data and information, which hinders policy formulation in India.

The session was concluded by the moderator discussing the significance of mapping and granular detail for water conservation measures. The dilemma between quick wins and long hauls also needs to be pondered upon due to the political economy involved in decision making and stakeholders involved. Although long term solutions are crucial, it is due to the political economy involved in conservation projects that results in a finite period is desired. Further, a huge data gap exists and there is a need for information and credible data for policy decisions to be appropriate and successful.

### 8.2.3 Roundtable - What Do Policy Makers want from studies from Water and Climate Change?

**Satyajit Singh**, Chair, University of California, Santa Barbara, USA commenced the session by discussing the significance of local-community based knowledge for policies on water and climate change. There was also a need for region-based studies on climate change and its impact on communities as most climate change studies. For this, structural difficulties such as the availability of datasets need to be addressed. Getting local voices and knowledge out and understanding ongoing policy initiatives was crucial for finding out intersections for collective actions.

**Abhishek Likam**, Central Himalayan Rural Action Group and **Pailyn Kelly**, University of California, Santa Barbara, USA presented their research on water and climate change in Uttarakhand through CHIRAG, a rural development organization based in Uttarakhand. The research focused on three themes; spring shed management and development, community ownership and policy interventions using tools such as interview, transect walk and activity plan. The research involved active engagement with the community for spring water initiatives. It was emphasized that the best solution can be found community and region-wise through discussion with the rural community, and by considering the economic constraints of the region and the people.

**Nick Bissonette**, University of California, Santa Barbara, USA spoke on the topic “Replenishment of groundwater in draught-prone regions of North Karnataka: Raichur”. The research focused on the theme of aquifer mapping and watershed management, which would possibly lead to groundwater replenishment and contribute to policy formulation. There is also a need to assess vulnerability in the community in terms of water quality. The need to educate people about water conservation was also strongly observed as the issue of replenishing groundwater through interventions like injecting water artificially were often misunderstood.

**Kunzes Dolma**, University of Delhi spoke on the theme “Climate Change and Water: Institutional Diversity in Governance in context of Ladakh”. The change in lifestyle and livelihood of people in the past decade is a major shift from the traditional method of living, leading to erosion of mountain sustainable living. It is also a contributing factor to climate change. Ladakh has been affected by flooding, low snowfall, melting of the

glacier. Tourism has also led to polluted water bodies. The region needs to adopt traditional and community-based methods to solve these issues.

**Kartik Joshi**, Aga Khan Rural Support Programme (India) and **Meagan Yeager**, University of California, Santa Barbara, USA presented their research titled “Women, Water and Climate Change in Gujarat”. The study is based in the Sayla area of Sundernagar district, a draught-prone area wherein even drinking water is a major issue. The study emphasized that it is the smallest polluters who suffer the greatest consequences of climate change. Women particularly are among the worst sufferers. Chain reactions were studied, for instance, lack of water leads to crop damage, leading to a decrease in household income and less consumption.

In conclusion, there are wide ideas that came across from studies conducted in different states, each having different issues. The replicability of such region-specific studies in similar areas was discussed. From the policy perspective, it was emphasized that the ground reality needs to be understood by the policymakers and the constraints involved in the implementation of policies also need to be understood. For a larger impact, the stakeholders' need to be incentivized to push them for making behavioural and actual changes.

#### 8.2.4 Roundtable - What do local communities want from studies on Water and Climate Change? Livelihoods, Agriculture & Adaptation

**V R Raman**, Chair, WaterAid India opened the session by elaborating the partnership between WaterAid India and the University of California and the studies resulting from this partnership is important looking at how communities are perceiving climate change. Before any policy is made it is important to see what vulnerabilities and issues climate change is creating and how communities are perceiving these. The studies to be presented will discuss these.

The study regarding Gender Dimension of Climate Change: voices from below were presented by **Molly McAnany**, University of California, Santa Barbara, USA and **Shivani Sharma**, Centre for Advanced Research & Development. The study revolves around the role of tribal women in the Bhil Dominated and overexploited Nalchcha block in Dhar District (Madhya Pradesh) which faces water shortage due to overexploited groundwater resources. The paper studies the acquired role of women in response to climate change, impact on the livelihood of tribal women, the role of women collectives in water and climate change. This is an ongoing study that expects to address local level adaptability to climate change on agriculture and livelihood at the micro-level.

In the study on the Social Impact of Climate Change in the Sahariya Tribal Community, **Himanshu Singh** from Parhit Samaj Seva Sanstha and **Rachel Dice**, UCSB studied the Shivpuri region in Madhya Pradesh, a home to Sahariya Tribe which faces depletion of water. The authors aim to use participatory tools to capture data and have selected 20 villages for PRA. Authors expect that they can achieve the objective of strengthening civil society action in the water and climate change, increase agricultural productivity and availability of food, and create a water security plan.

The study titled Climate Change and Water Contamination: Fluoride menace in Nuapada by **Jaganath Chatterjee**, Regional Centre for Development Cooperation analyses the block and district data by using PRA tools to establish impacts of climate change on water and

fluoride contamination and determine the impact of water stress vulnerability in Nuapada. The author aims to study the prevalence and use of water resources, local water governance system, source, and availability of water for birds and animals.

Impacts of climate change and socio-economic transition-rural villages, a study by **Bikash Pati** of Water Aid, **Debabrata Dash** of Pragati Jubak Sangha and **Annie Lovell**, UCSB focus on the issue of natural disasters, salinity, agriculture, aquaculture, and socio-economic migration in Chandbali. The study aims to gather data and conduct community mapping, transect walk, and focus group discussions and document the human experiences. The authors aim to suggest potential policy changes in the final report.

The study titled Governing Water and Climate Change, **Bikash Pati**, WaterAid, **Debabrata Dash**, Pragati Jubak Sangha, **Sitara Slee**, UCSB aims to assess the current community needs and the convergences between water and climate change in Chandbali. What are the current approaches to governance and how can they be improved? The study further intends to do a resource, hazard and vulnerability mapping and give recommendations on community governance.

Discussant, **Amulya Miriyala** from WaterAid suggested to participants that while we are focusing on trying to find out if there is any impact of climate change on water resources in these areas; there is a possibility that there is not a significant impact. **Shailaja Fennell** suggested taking note of the perceptions of local people. She suggested Debabrata Dash learn from neighbour Bangladesh who is facing issues of saline fields and see how the community perceives pisciculture and agriculture.

### 8.2.5 Roundtable - What Do Local Communities Want from Studies on Water and Climate Change? Poverty, Indigeneity & Gender

Being from administrative services **Adarsh Singh**, Chair, Government of Uttar Pradesh gave two examples to cite the importance of water resources in rural areas. In most of the villages of UP, handpumps are the most important determinant in local politics. Gram panchayat election is determined based on how many handpumps have a candidate installed in a particular hamlet. Secondly, in his administrative experience around 90% of complaints in rural areas are related to access to handpumps and installing new handpumps. Other factors like caste, class and gender also play role in access to water. He also reiterated that women are collectors and providers of water and whenever the supply is impacted, they are the worst sufferers. The disparities in terms of gender are immense and equally immense in terms of caste.

**Avantika Singh**, Assistant Professor, The University of Delhi in a study of the Jalaun district analysed the concept of Jal Saheli in establishing the first right of women on the water at the local level. The study aims to capture the payoffs of targeting women in water conservation activities.

“Understanding Community Engagement Processes towards building climate resilience” is studied by **Shishir Chandra** and **Hallie Georgeson**, University of California, Santa Barbara in three villages in the Chitrakoot district, these are in drought-prone regions of the Bundelkhand region, and the region demonstrates high vulnerability to changes in local temperatures and rainfall. The study aims to increase community-level engagements with conservation and augmentation initiatives, especially across marginalized groups.

The study will suggest improvements in community-level strategies for coping with drought and other effects of climate change.

As per the study on “Flood and Climate Change”, voices from the Desi Palia Community of Mahananda Basin of North Bihar were focussed by **Pankaj Kumar Jha**, Assistant Professor, University of Delhi. He studied the intersectionality of climate change, flood, and caste vulnerabilities. Are there any indigenous ways of coping with climate change emerging from the desi palia community? The study aims to create a dialogue with the local community at the panchayat level, with a local politician and administration and enhance the policy-making process.

**Praveen Singh**, Ambedkar University, Delhi initiated the discussion by citing the importance of such studies. Certain kinds of knowledge systems have developed over the last 5-6 decades such as adaptive science while it tends to marginalize certain social science disciplines. Such studies are important for policymakers to know that these kinds of studies are available and to make climate-proof policy adaptations.

**V K Madhavan**, WaterAid India emphasized that it is important to note that there are spatial dimensions to poverty focusing on the location and distance from the resource. Given that impact of climate change is going to be differential depending upon the access to resources based on caste, socioeconomic status, and gender; it is critical that whose voices we want to hear in engaging with the community.

**Prof Satyajit Singh**, University of California, Santa Barbara reiterated that it is also important to engage local administration within the hierarchy who can drive the process of change. Also, it is important to look at a cost since the government will ultimately look at cost-benefit.

## 8.3 Gender

In this section, the presenters discuss aspects of women in science and technology or their lack of therein. There is a need for the government to have a more robust set of policies especially for women in STEM areas. Women predominantly leave the physical sciences after Post Graduation level and do not go on to do research. The government can step in and create policies that ensure women continue to move towards research after PG level. The ratio of women to men in different scientific institutions in India is quite dismal. Equitable policies are needed to ensure women are incentivized to get into research. The S&T policies in the future can have some consideration in this regard. We need to create friendly environments and policies for women using methods like institution switching which could work for women trying to move to institutions of their choice more easily and to move to locations where they are comfortable in terms of family, children's education etc.

### 8.3.1 Paper Presentations

**Krishna Tripathi**, Research Scholar, Centre for Studies in Science Policy, School of Social Sciences, Jawaharlal Nehru University discusses her paper titled “Analyzing Innovation Governance under Science and Technology Policy in India: A Responsible Innovation Perspective” which has focused on prevailing socio-economic conditions but as she states, faced numerous challenges. The author states that since the dawn of policymaking on science and technology in India, the focus has been to address existing challenges about scientific development. Specific hurdles are posed by novel and emerging innovations which are various associated risks and uncertainties. Globalised machinery of innovation – most prominent- diminishing accountability for the emerging innovation hindering its acceptance and adoption in the society has exacerbated the difficulty in anticipating risks in innovation. However, the authors say policy formulation has undergone a sea change in India in terms of its focus since 1958 to the current draft STI Policy 2020. Krishna states that Innovation governance concerns itself with the management of technology which includes every aspect from ideation to adoption and beyond. S&T Policy in India, the author states, has taken a far more integrated and comprehensive outlook and has brought issues of society, inclusive growth, and accountability. Inclusivity of innovation a larger part of society benefits. The author proposes a common ground approach to innovation governance and responsible innovation approach towards new emerging innovations. The author then introduces the Responsible Innovation (RI) approach proposed by Singh & Kroesen, 2012. RI has 5 dimensions namely, anticipation, reflexivity, deliberation, participation, responsiveness. The author concluded that though the S&T policymaking has evolved tremendously concerning innovation governance, there are still areas that need focus.

**Kuldeep Minda**, Research Scholar, Centre for Studies in Science Policy, Jawaharlal Nehru University in his paper titled “Role of Women’s Scientists in Indian Science: A Case Study of Selected Physical Science Institutions” focuses on the achievements and contributions of Indian Women scientists. Their contribution to Physical Science can be judged based on a variety of factors, such as citation index of individual, number of publications and patents and their H-index. The author prefaces his presentation with some numbers to provide context. It was found from research that women outnumber men in tertiary

education within developed countries but in India, the reverse is true. Women make 15.03% of the total Human Resources in physical sciences. The author describes the objective of the study which is to understand the role of women scientist in Indian science. Further, analysing the research productivity of women scientists in the field of physical sciences. Lastly, understanding the challenges faced by women scientists in India. Borrowing from a NITI Aayog report, the authors state that the highest number of women are working in CSIR lab 2<sup>nd</sup> is DBT and further IIT, but these are a very small number compared to men working in the same institutions. A similar trend can be found in the distribution of 'Fellowships' where a clear gender gap can be observed. Women in leadership positions is a rare occurrence and even at premium science institutions in the country such as AIIMS. AIIMS, it is pointed out by Kuldeep has had one woman director in the last 60 years of its history. Marginalization of women scientist, while it is gaining global recognition, in India it is proving difficult to retain women in physical sciences past the Post Graduate level due to traditional thinking which creates a perception that physical sciences are more male-dominated fields. The author cites the example of enrolled PhD candidates in various physical sciences and shows that of the 37k PhD students enrolled in India – chemistry has the largest number of PhD scholars and among those, a mere 1000 scholars are female compared to 4000 males. The author concludes that lower participation in research is directly impacting total research productivity in so-called muscular subjects like physical sciences. Further, while many women have achieved and done well in the science fields, they have not received their due recognition and rewards.

**Vairaj Arjune**, PhD Scholar, Jawaharlal Nehru University presented his paper titled "Understanding Scales and Linkages in The Systems of Innovation Approach: A Co-Word Analysis" on the STS domain and the Systems of Innovation approach. The author begins by asking what are innovation systems? The salience of these systems is of growing interests for policymakers currently as well. The author states that studies have devoted significant efforts to identify new trends and topics in the STS domain, particularly in innovation and competitiveness because investment in research and innovation is a key contributor to economic growth and the development of a market-based economy. It is, therefore, in the opinion of the author, imperative for STS scholars to analyse S&T instruments through which governments are piloting international collaborations and communicative relationships among stakeholders. The author states that it is important to analyse and understand changing structure and research trends of a scientific discipline for anyone to coherently understand the various scales, magnitude, and level of Innovation Systems (IS) existing at different levels. The objectives of the paper were outlined by the author as (i) what are the mainstream innovation systems, their historical background and unit of analysis; (ii) What are the influential journals and authors that contribute to the field of innovation system; (iii) what are the contemporary topics and research in the field of innovations systems. The author states that a systematic review of Highly Cited papers was done as part of the paper and 94 documents which have 25 or more core citations relating to innovation systems was done and results presented in graphical form. To conclude, the author described 8 Systems of Innovation approaches.

**Shreya Biswas**, Assistant Professor, BITS Pilani, Hyderabad Campus, in her paper, "Female Ownership and Innovation in India" started her presentation with the question, "whether Gender of the owner can explain the firm's likelihood to innovate?" The authors

used World Bank Enterprises Survey-2014 data and found female ownership of firms is positively related to input and output measures of innovation probability. The innovations are more in the firms when there are no or fewer crimes in the region when there are reduced likelihoods of unfavourable credit terms.

**Anandita Pathak**, the Student, The University of Delhi, presented on “Impact of Technology and Social Media in the Lives of Women in Assam”. She started her presentation by introducing a specific scenario of Assam related social media on women’s lives, and how manner technology and social media have continued to impact each other, and the unfortunate incidents of stalking, harassment, cyberbullying and crimes against women. Through the target group questionnaire with the age of 13 – 50 years of women in Assam, she measures the impact of social media crimes against women.

## 8.4 Food Security

The complexity of questions like food security can be simplified using a clear research design, by combining the small picture with the larger picture and by taking into consideration various perspectives. To exploit the available opportunities in agriculture, each crop is not required to be produced locally. Crops that have an industrial market and the potential of providing better income prospects to farmers and therefore lower the pressure on agricultural land should be cultivated. Although, it is challenging due to the number of stakeholders involved. The papers in the following section are focused on food security and agriculture, albeit in different focus areas *i.e.*, local, community-based studies and macro-level studies with big picture policy initiatives. Such place-based research as well as applying these to macro-level initiatives are bound to bring major interventions in achieving food security goals.

### 8.4.1 Paper Presentations

**Avantika Singh**, Assistant Professor, University of Delhi presented a paper titled “Anaj Bank: A Food Security Intervention by Locals”. Based on the premise that India is not doing too well in terms of food security, the ‘Anaj Bank’ is seen as a major intervention for food security, wherein loan is taken and repaid in the form of food grains. The study is conducted in the Bundelkhand region of U.P., where PDS, ICDS are not able to perform well. The Anaj Bank is a community-based, local initiative, with a self-enforcing democratic structure. These banks have been able to provide food security cushion by the community itself. This has also brought forth a much more flexible and easier alternative to conventional banks.

**Amrita Chakraborty**, Project Coordinator, Bharti Institute of Public Policy, ISB presented a paper titled “Food Secure India – An Archaic Policy Shift Without Nutrition Secure Nation”. Food security has been discussed in the context of nutrition. Measures targeting food security have increased production level but at the same time, have increased price variations in agriculture. The MSP for paddy has been increasing for the past decades but that of Nutri-cereals has increased only post 2008. Due to this, the area under Nutri-cereals cultivation has been volatile, leading to nutritional deficiency among people.

**Medusmita Borthakur**, PhD Research Scholar, Tata Institute of Social Sciences presented a paper titled “Implementation of Targeted Public Distribution System in the Nagaon District of Assam”. The National Food Security Act, 2013 ensures the availability, access, and affordability of food. Using a mixed-method approach, SC and ST population was studied in Kapili and Pakhimoria blocks as these have the maximum population of SC/STs. Targeted PDS and Universal PDS were compared. Targeted PDS has contributed to the wrong exclusion of needful people in these regions due to flaws in inclusion/exclusion criteria. She suggested Universal PDS as more effective for the region and better for achieving SDGs.

**Suman Ray**, Senior Scientist, CSIR-NISTADS presented a paper titled “Socio-Economic Impact of Aroma Mission-Rural Empowerment”. The Aroma Mission launched in 2016 brings under its umbrella high yielding varieties of cash crops. These aroma crops are used in making essential oils. To produce these crops, different agro-climatic zones have been created across the country. The primary survey has been conducted in regional clusters. It is found that the mission has enhanced the income generation of farmers,

improved livelihoods for marginal, small, medium, and big farmers. However, the non-availability of loans and lack of market availability in some areas are proving to be a hindrance.

**Arun Kumar Singh**, Assistant Professor, Multanil Modi Post Graduate College Modinagar, Ghaziabad in his paper titled “The ‘Big Technology’ Syndrome: Reflections on Sugar Technology Through Discourse Analysis of State Policy in India” discussed challenges faced by the sugar industry at present. First, its production is not happening in the suitable agro-climatic zones. There is also growing monopolisation of the sugar industry which leaves small producers in a disadvantageous position. The sugar policy in the country needs to emphasise the production of jaggery which involves a lot of local assets and creates local employment opportunities.

**Shubhra Pant Kothari**, Assistant Professor, University of Delhi presented a paper titled “The Role of Digital Identification in Agriculture: Emerging Trends in Uttarakhand”. The author highlighted asymmetric development in India concerning digitalization., leading to social and economic exclusion. In Uttarakhand, a wide gap exists between the hilly and plain regions. Further, due to the small size of landholdings, the possibility of adopting digital technology in agriculture is tough.

## 9. Concluding Address and Vote of Thanks

### 9.1 Concluding Address: Bhaskar Chakravorti, Dean of Global Business, The Fletcher School, Tufts University, USA

**Bhaskar Chakravorti** addressed the closing plenary with the topic, “Digital in the Time of COVID: What We Learned About Living, Loving and Dying Over the Internet”. He conclusively reflected on how the last twelve months have been for each one and how the people survived the pandemic and those who were not able to. He stated that the survival tether that held people together was the tether of digital technology. He picked on various cases reflecting patterns of technology serving people well such as the case of school children studying through digital platforms where the responsibility of education shifted to digital learning for those who have access to and the community learning for others. He also quoted that people lived, loved, and died on-screen and thus developed a relationship with technology. He pinpointed that digital technology is acting both as a multiplier and divider and emphasized the need of moving the needle towards multiplication, productivity, inclusion, and enhancing the state of the human condition rather than dividing. He raised a critical question that how the presence of technology in our lives made a difference to how much of a buffer we have to our economic circumstances. He further propounded that if you are highly evolved as a digital country then you would be somewhat resilient to the economic shock of pandemic and corroborated that technology did play vital a role in providing a measure of economic resilience. He finally concluded that we need to take time, investment, and energies to change the underlying structural systems of digital infrastructure that hold us together and ensure that they are free of the vices rhetoric, provide a degree of privacy, degree of ownership and degree of empowerment to all the users.

### 9.2 Vote of Thanks: Ashwini Chhatre, Executive Director, Bharti Institute of Public Policy, Indian School of Business, India

**Ashwini Chhatre** expressed his delight and honour in concluding the two-day conference witnessing the fantastic, rich, invigorating, and deep conversations. He pointed out the inequalities that were uncovered by the pandemic that though existed earlier but were invisible. He also emphasised the role technology played or failed to play in either making the inequalities visible or creating or enhancing these inequalities and posited that technology was both our saviour as well as bane. He concluded by leaving the audience to look forward to what pandemic has left us with, what digital boulevards we are building and what policy options do we have to address these inequalities.

## ANNEXURES



### IPPN Conference Schedule 2021



### IPPN Conference Bio's

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