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The Integrated Information Ecosystem of e-Gov, ICT, and SDGs: Learnings from Bangla Sahayata Kendras

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Abstract

The electronic governance (e-Gov) mechanism and the introduction of Information and Communication Technology (ICT) have evolved the working of democratic governments and their interaction with the diverse populace. A technology-driven integrated information, communication, and delivery system steered the West Bengal government and its people toward sustainable transformations and development, to approach United Nations' ten significant SDGs. The balance of socioeconomic development while protecting natural resources for future generations in a fast-changing digital ecosystem is called Electronic Governance for Sustainable Development (e-Gov for SDGs). This academic paper elaborates on an integrated model of e-Governance for sustainability communications with citizens at the grassroots in West Bengal. It explains the nuances of information and communication technologies in a citizen-centric service delivery system through e-Gov units called Bangla Sahayata Kendra (BSKs). The e-Governance model, dependent of technology-driven digital communication system for public service deliveries, showcases a highly intertwined process of sustainable development.

BSKs:

- Are units of e-Governance in West Bengal
- Provide electronic delivery of informational and transactional services to citizens - by publishing government information, increasing public participation in government decision-making and making government services readily available to citizens.

- Fulfil UN's Sustainable Goals by providing universal access to public services and connecting different government departments through online interactive communication platform.

Building on the intersection of e-Gov, ICT (information, communications and technology) driven digital communications and SDG, the paper examines ten initiatives run through the BSK portal that unifies government systems, sustainability initiatives, and digital communications tools through a single online window. The platform mitigates five significant sustainability challenges: increased inequalities, gender inequality, unsustainable community practices, climate inaction, and poverty. Finally, the paper evaluates the role of information, communication and technology (ICT) systems in e-governance enterprises and its contribution toward achieving Sustainable Development Goals (SDGs).

Keywords: Electronic governance, SDGs, Sustainability, Technological Interface, Digital Platforms, Information & Communication Technology (ICT), Information Education and Communication (IEC) economic, health, social security systems, online delivery, government, West Bengal, Bangla Sahayata Kendra

Introduction

e-Gov and ICT

The idea of e-Governance is usually confused with that of e-Government. "e-Governance uses information and communication technologies (ICTs) to support public services, government administration, democratic processes, and relationships among citizens, civil society, the private sector, and the state." (Connolly, 2012). The ICT industry has a long tradition of re-labelling technologies (Remenyi, January 2009). Political leaders and Governments also display an inconsistent attitude to the terminology used in ICT. Hence it must be understood that e-governance is not just Governance with an electronic cover. The several definitions describing e-governance call it an information-age governance model (Connolly, 2012). The e-Governance model is mandated to utilize appropriate technology for various deliveries, including greater democracy and fair and efficient services (Palvia, 2007). In this model, the focused use of Information and Communication Technologies (ICT) and Information, Education and Communication (IEC) materials to manage organizational resources, administer policies and initiate government communication with public makes it different than e-Governments or just Governance. e-Governance deals with a spectrum of relationships and networks within the government regarding the usage and application of ICTs (Riley, 2010)." This paper analyses the effectiveness of ICT in improving the quality of services and Governance of an online public service delivery mechanism in a localized area in West Bengal through units of e-governance called the Bangla Sahayata Kendra. It also models the integrated three phases of e-government: -

1. Publish- Broadening access to government information by online availability of government services, environmental data and health information, integration to government portals.
2. Interact –Increasing citizen participation in Government decision-making such as by digital two-way communications, emails, social media and online forums
3. Transact- Making government services readily available to the public through online permits, documentation and communication activities.

e-Governance and SDG

United Nations' "Transforming our World- The 2030 Agenda for Sustainable Development, in its goal number 16, mentions about effective, accountable, and inclusive institutions at all levels (UN- Transforming Our World -The 2030 Agenda for Sustainable Development , 2015). One of the most significant aspects of e-governance has been to ensure public access to information, opportunities, and institutions. Hence the relationship between e-Governance and SDGs gains momentum and explains that strengthening relevant public organizations, including those that build international cooperation, for building capacity at all levels will promote laws and policies for sustainable development. In addition, the electronic solutions of governance have the potential to create an informational ecosystem for peace, and justice and strong institutions for Climate Action, Industry, Innovation, and Infrastructure, building sustainable cities and communities.

In the e-governance model, technology access is foremost for citizens as it provides leaner, transparent, and accountable governments. However, the mere availability of technology does not offer governance. There is a need for ICT systems to include capacity building of people living at the grassroots for a technology-backed relationship between citizens and governments for potential electronic deliberation over civic communication, policy evolution, and democratic expressions of citizens will. When used by citizens and the government for sustainable communications, ICT is then termed a valuable tool to approach SDGs.

ICT, IEC and SDG

ICT is a crucial enabler to meeting the SDGs, particularly in low-income and diverse countries such as India, where closing the development gap requires clear information, bi-directional communication channel, innovation, investment, and policy intervention. In the early stages of the UN's Millennium Development Goals, two decades ahead of SDGs, mobile broadband was a rapidly evolving, 'leapfrog' technology. That technology reached maturity now, and its significance in everyday life, becoming essential in India during the pandemic, has grown many folds. In 2022, the world's second-largest internet population will be over 930 million users, hoping to grow to 1073 million by 2024 and 1341 million by 2030. (The Earth Institute, 2016). Of these, 744 million users accessed the internet via their mobile phones in 2020, and that number will grow to 1.5 billion users by 2040 (Basuroy, 2022).

Mobile phones are already enabling dramatic transformations in e-finance, e-education, and e-health, policy communication, and grievance registering process overcoming

longstanding gaps in universal access to public services such as banks, health clinics, food and supplies department, school, and the police station. In many parts across the globe, ICT is transforming cost-intensive public services and paving the way for advances in e-commerce, governance, trade, and transportation. Besides, key drivers of knowledge sharing regarding Climate Change, Education, and Sustainable Cities are backed by ICT-technologies.

Communication Technologies are thus, the means used in communication (Fuchs, Communication Technologies: Means of Communication as Means of Production, 2020) of policies, governance, grievance or SDGs. In this digital era, computer-mediated communication systems deliver governmental services to people and address SDGs.

Computer-mediated communication is not purely technological: Computer use is based on human activities (writing, typing, human speech, bodily movements) by which the digital data is created (Fuchs, Communication Technologies: Means of Communication as Means of Production, 2020). The computer communication system thus operates in a combination of the human body, mind, technology, and logic to provide information and interaction. Therefore, a technologically mediated communication system helps to stretch communication over spatial and temporal distances at the grassroots to attend to the daily needs of the public.

Governments use ICT and IEC materials in public service deliveries to get the message out. Such as in healthcare services, effective communication is of the utmost importance when delivering public healthcare, as in India. Multiple components of effective communication in a healthcare setting constitute overcoming healthcare literacy, cultural competency, and

language barriers (Ratna, 2019). Just as effective communication is bi-directional between patients and healthcare systems (Ratna, 2019), such a system is required in the whole of the e-governance model as well to oversee all public services. Effective public communication needs a systemic channel and pattern to get the message right to the citizens pertaining to SDGs.

e-Governance, ICT, IEC and SDGs

The ecosystem of the four are interdependent, integrated and inseparable. To realize the potential of ICT for delivering progress on the SDGs, it is vital that governments, academic and other institutions, businesses, and citizens in developing and developed countries prepare themselves for an integrated ICT-enabled, technology driven communication transformation network. The process must enable the integration of government systems - adequate ICT (Information, Communication, and Technology) and IEC (Information, Education, and Communication) materials for public understanding and technology-driven information systems for dissemination and interaction with public institutions. Only a systemic message delivery, interaction, and engagement process will bring out a detailed evaluation of outcomes, social development, and SDGs.

While outlining the incredible potential of ICT and driving disruptive progress against the goals, this paper showcases the practical barriers affecting the large-scale implementation of public systems providing e-health, m-health, e-commerce, e-education, smart energy and transportation, carbon reductions, fighting climate change, and connecting the unconnected and other essential services. However, technology transformations through ICT and the digital

information systems available at grassroots also enable several SDGs, such as providing information on clean and sustainable water, poverty alleviation, food security, nutrition, and productive agriculture, and creating smart, sustainable cities.

But, first let's discuss the hurdles that hurt the implementation process

- Lack of a structured public policy framework for impactful ICT use
- Lack of physical infrastructure for mobile broadband for citizens at grassroots
- Low public-private partnerships to leverage e-Gov solutions
- ICT-based system components that need to be interoperable across multiple platforms on a large scale.
- Appropriate user skills for ICT driven bi-directional digital communications
- User skills to manage the available ICT systems both by governments (service provider) and the public (user).

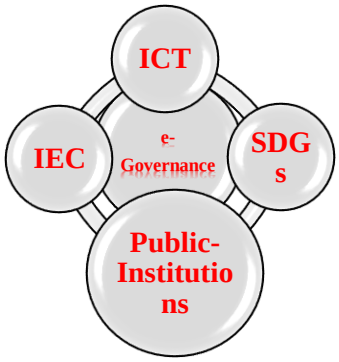

Fig:1 Representational Relationship of E-Gov, ICT, IEC and SDGs

Methods and Materials

e-Governance through the Bangla Sahayata Kendra (BSK)

The BSK web portal (Personnel and Administrative Department, n.d.) is an integrated system of information, services, outreach, and delivery that uses digital operational tools to provide public services, public communication, and governance to citizens of West Bengal. The platform creates an inclusive and sustainable citizen-centric online delivery model for G2C services. At the same time, the platform uses ICT systems to directly inform, interact, communicate and manage citizen services in developing a transparent, accountable, robust government mechanism.

The system operates in the following ways:

1. One-to-one physical assistance to people to avail of online public services
2. Building Capacity of people for online public service at no cost - Data Entry Operators (DEOs) handhold people to go online.

3. Electronic delivery of all governmental services at the grassroots, be they informational or transactional.
4. Online grievance registering process for citizens to interact directly with the government representative.
5. Citizens and Government communicate directly and digitally

The Bangla Sahayata Kendras (BSKs) are, thus, physical offices available up to the gram panchayat level in West Bengal, providing free-of-service cost, end-to-end online public service assistance to citizens through the government's single-window web platform - https://bsk.wb.gov.in/. Physical contact of citizens with the BSK operators is limited to providing assistance to the digitally unskilled citizen to avail of online services. The system thus aims to bridge digital divide in society.

Outcomes

The biggest challenge for technology to reach the grassroots is not limited to the availability of tech-based devices, internet connectivity, or tech-administered digital platforms. It is also the assessment of user skills while using digital tools independently. The tech-driven mechanisms globally have created a different kind of inequality with devastating consequences. The pandemic times exposed glaring divisions in democratic societies with learning, communicating, and developing the rights of people beyond comprehension and repair. An assessment on online learning explained that students finishing their first half semester of

online learning were retaining 20 percent of the knowledge that they would have gained in a regular classroom setting (Shrier, 2021). The assessments of such disruptions in societies during the pandemic have yet to be made, so the repair process has yet to begin.

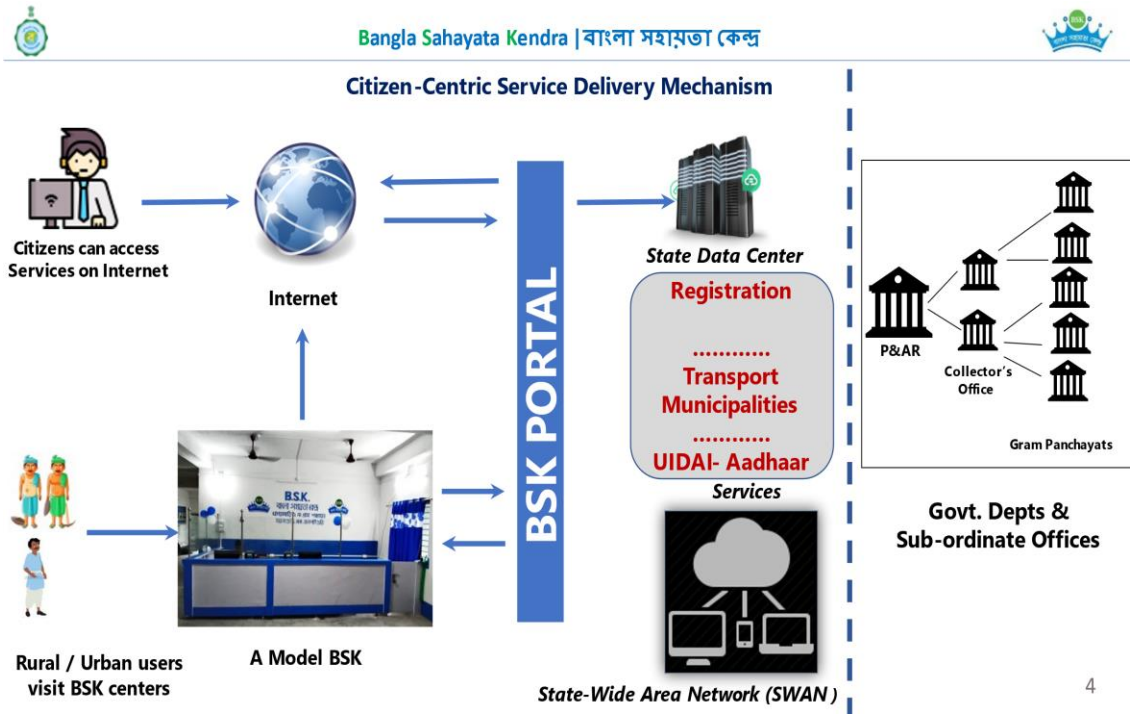

Fig-2- BSK Operational Model

In the BSK model of e-governance, data entry operators work as the bridge between people and government passing on information and holding bi- directional communications between the two providing assisted online communication facility to the citizens as grassroots. In addition, the system generates greater online civic engagement and provides universal digital access, thus empowering the last person. The e-gov model, therefore, serves to channel

government services, information and communications through a single window abridging inequality. The government intends to approach at least ten pertinent United Nations Sustainable Development Goals before 2024, through the online platform.

2024 is the parliamentary election year in India, and it is time to review the performances of public policies. E-governance, though as a policy decision, serves as a significant vision of the future and needs massive institutional restructuring. Though there are different histories, directions, and ambitions across the world regarding the role of technology, current discussions dominate about what societies, economies, and the environment will look like in the years to follow. The eastern state of India has highly remote areas with 3343-gram panchayats. The questions that drive the discussions are how to respond to changing socioeconomic and environmental conditions, how individuals and societies will better shape their locality, how technology and the BSK system will enable citizens for bi-directional communications, and how that would improve the quality of life and the environment. In addition, if such a system fulfills the mandate of Sustainable Development Goals.

The Study

This researcher conducted a recce study on the BSKs grievances redressal process registered online during a specified period (April 1, 2022-30th, April 2022). It was during the receding times of the pandemic, and the purpose of the study was to analyze the digital communication and interactive skills of citizens with their government. The data used was sorted out from the online system of the BSK portal by accessing the registered complaints

submitted by the citizens in the prescribed format. Those grievances that were not submitted online were registered by the BSK operators by entering the citizen details on the online platform using the information provided by the citizen through handwritten letters, phone calls or word of mouth. The study was meant to understand the following aspects:

i) ICT available through the BSKs was available to all citizens

ii) ICT available at the BSK center could be used by all citizens

iii) ICT provided adequate uniform information to the citizens regarding government services

iv) ICT tools engaged citizens universally on the online platform for their grievance redressal

The Data

1. The online window registered three thousand four hundred fifty-eight grievances seeking assistance for public services.
2. One thousand thirty-nine such grievances were registered online. The rest, 2419, were sent through conventional methods such as letters, phone calls, or personalized visits to the district administration offices. These were entered manually on the grievance portal by government officials to record and redress them.
3. Three thousand three hundred twenty-eight grievances were related to government welfare schemes for the poor and the vulnerable; just 130 were for other reasons such as corruption and unavailability of public services in a particular locality.

4. Four hundred forty-nine cases were registered for "Self". Rest was done on behalf of other citizens, that included parents, family members, or even gram panchayat leaders.
5. Six hundred and twenty such cases were registered by women, while 2838 were men users.
6. Five hundred and fifty-eight people belonged to ST/SC category, and 2900 were others, including the general public.
7. Six hundred and thirteen women registered for Food Schemes, 7 for others.

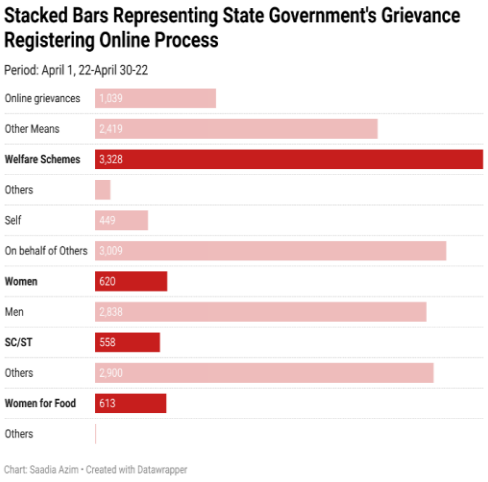

Fig-3[1] Graphical View

Percentage Assessment of the Study

The Assessment

Percentage	The Inference
30	Online
96	Welfare Schemes
12.6	Self Help
18.6	Women needing Food
33.8	Women and SC/ST communities

Fig -4[2] Percentage Analysis

[1] Representation of respondents (citizens) using grievance registering online process

[2] Citizen percentage-wise representation on the online grievance system

Inferences

The study highlighted the following inferences:

i) The disparity in digital communication skills of the citizens to avail electronic government services affected government performance levels. Such as out of 3328 grievances only 620 (18.6) women looked for government assistance. And 3009 such registration was done on behalf of "Others" implying people were not skilled to file their grievances themselves. Only 30% of the grievances registered for redressal was received online while 96 % of the applications were for seeking governmental support and welfare schemes.

ii) Be it the urban-rural, higher-lower, literate-illiterate, haves-have not, citizens remained segregated in more ways because of their diverse digital communication abilities.

iii) Citizens who were smarter, more resourceful, and more knowledgeable handled the digital transformations in government services better than ordinary non-resourceful people.

iv) Citizens sought government support for welfare schemes. But their inability to communicate properly gave restricted response from the government.

v) Hence, neither public institutions nor government delivery system worked full proof. Government could not universally reach to its citizens, even digitally.

vi) In such a situation fulfilling SDGs remained a challenge.

The idea to serve people at the grassroots and provide the same opportunities of public services to all, addressing issues of local poverty, gender inequality, good health, and well-being, etc., through the integrated mechanism of BSKs was thus found to be partially working. It was inferred that since citizens depended on others to avail of government services because of their limited digital communication skills, the government must provide free of cost assistance and capacitate people for online services, build their digital skills and empower citizens. That would set the example for progress toward achieving Sustainable Development Goals (SDGs) by 2030.

So, the BSK hybrid assistance method was strengthened, which bridged the digital divide – where citizens could avail of online public services through mediators (BSK Operators). The mediators provided information, wrote messages, filled grievances, and escalated redressal for ordinary citizens since people en-masse could not use digital tools independently to communicate their issues at the grassroots. With the BSKs assisting people to avail of online services, the data on the government's social and sustainable development schemes could be collected, filtered, and subsequently evaluated. Henceforth, the e-Gov online system operated bi - directional.

Discussion

BSKs, Public Institutions and SDGs

The original idea of the importance of governance as a development priority for the UN was the Millennium Declaration, which the UN General Assembly adopted in September

2000 (Romero, 2014). The idea of stressing "good governance" has been in the policy literature of global academic and financial institutions for several years. The Millennium Declaration is notable for its global commitment to strengthening the rule of law and for its explicit use of democracy as an essential component of international order and domestic betterment.

The evolution of the Millennium Development Goals (MDGs) to the Sustainable Development Goals (SDGs) is marked by changes in both content and process. For example, the content of Goal 16 addresses issues related to governance and strengthening public institutions. The SDG process has called for governments to be more collaborative, with more deep and substantive integration of civil society. The belief is that Goal 16 represents a significant innovation with potentially long-term implications, and the BSK model of e-Governance

served the purpose by integrating governments in a whole-of-the-government approach.

The interlinked system of e-Governance, governmental communication through the use of ICT, and SDGs is thus considered to be interconnected.

A demographic chart given below downloaded from the BSK portal that was used to enter citizens basic record seeking governmental service provides the following information:

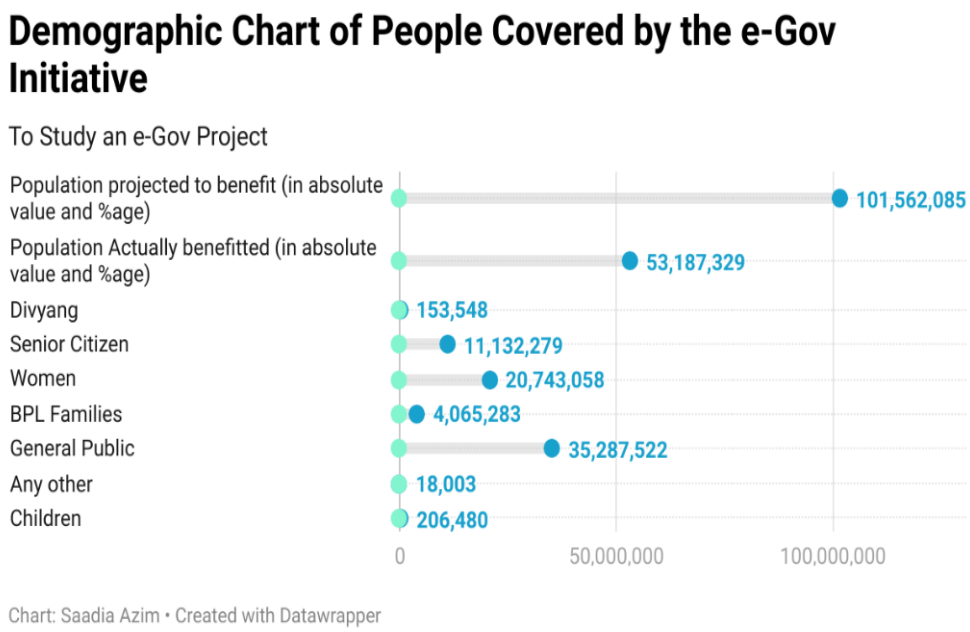

Fig 5[3]: Chart representing Citizen's Online Engagement

Timeline: November 2020- September 2022

BSK and SDGs

BSKs serve as a single-point channel for multiple services facilitating multiple e-transactions for citizens from a single pointy access available online. Its presence in grassroots as offices provide hybrid opportunities to citizens to be assisted to reach out to its government also. A robust back-end user interface applies ICT for applications, GPS Mapping, Dashboard,

[3] Fig 6: Citizen's Engagement Chart covered under the BSK initiative

Complaint Tracker, Management Information Systems (MIS) etc., connecting the 57 departments of the government machinery of West Bengal.

The BSK Networks provide the following services:

G2C: The portal is the interface delivering all public services free of service charge through a single online window.

G2B: Citizen communicates and interacts directly with government and avails of its services and its payment gateway through the online portal. e.g., electricity bills or road tax or complaints regarding the services.

G2E: The government employees access automated ICT systems, such as the file tracker system (FTS) for deliveries of public services in the integrated digital ecosystem. They deal with fewer human interactions making them agile, productive, & unbiased.

G2G: The BSK portal integrates government departments and channelizes citizen applications, information and communications towards the department's portal. It receives digitally signed e-certificates for citizens through the portal interface, e.g., e-ration cards and income certificates.

ICT has experienced the fastest global diffusion in history, with the time taken for the global public to adopt ICT-based applications such as mobile phones, computers, the Internet, and social media outstripping any previous technology. Related IEC material available digitally also informs and builds knowledge of citizens.

The challenge that persists is to enable citizens to be able to interact and communicate with the government independently. Such a capacity will empower citizens uniformly and bring equitable development in society.

Summary

Indicative Social Progress through BSK's Digital Online Engagement Addressing SDGs

The data provided below was available at the BSK portal as a public document for a specific period of time to analyze the performance of the BSKs and its digital interactive platform the BSK portal.

BSKs Delivery System	Timeline	ICT System	Description	SDG Goals Addressed
General Grievances of People	April 2021-Nov 2021	Online and Hybrid Grievance forms submitted by people.	12 lakh people approached the government through the BSK with their grievances P.S: This was second phase of the pandemic and online communication was promoted	Goal 16: Building Strong and Reliable Institutions Goal 12: Responsible Consumption and Production

3561 BSKs provided the online services	Nov 2021-Sep 2022	Communication Networks of Government, Publicity, Advertisements; Public addresses of Leaders; SMSs and TV, Radio Announcements	8 crore people approached the government for online public services of various departments through the BSKs	Goal 10: Reduced Inequality Goal 5: Gender Equality Goal 11: Sustainable Communities and Cities
Covid vaccination registration through BSK online services	April 2021-April 2022	District level ICT, SMSs, social media	1 crore 94 lakhs people registered for COVID-19 vaccination	Goal 3: Good Health and Well- being Goal 17: Partnerships to achieve the goals
Universal Health Insurance (Swasthya Sathi)	April 2021-September 2022	Government publicity, newspapers ads and local information systems	14 lakh people registered to avail the health insurance policy	Goal 3: Good health and well -being Goal 6: Clean water and Sanitation
e-KYC seeding of Aadhaar with ration card	April 2021-September 2022	Program design, disbursement and local information systems such as mobile phones, FM radio, TV channels	91 lakh people updated their ration cards and downloaded the digitally signed e-ration cards	Goal 2: Zero Hunger Goal 1: No Poverty

Food Security (Khadya Sathi)	April 2021- December 2021	Online registration systems and disbursals, System Generated MIS building data	5.3 lakh people applied for Food Security	Goal 2: Zero Hunger Goal 10: Reduced Inequality
Free Food during COVID	March 2020- April 2021	Public Service announcements on radio, TV, newspapers, social media, mobile SMSes	40 lakh million people received food and shelter during the pandemic	Goal 1: No Poverty Goal 2: Zero hunger
Travel assistance back home	March 2020- May 2020	Public Announcement System, Online registrations	2.0 million migrants received travel assistance during Pandemic	Goal 10: Reduced inequality Goal 3: Good health and well being
Relief Material and Evacuation process	May 2021- June 2021	Online Grievance Mechanism, Public Announcements	30,000 people received assistance during cyclone AMPHAN.	Goal 13: Climate Action

Fig:6[4] – BSKs e-Gov machinery covering ten SDGs in West Bengal (March 2020-November 2021)

[4] Addressing SDGs through the BSKs Digital Mechanism

Inferences

Two contrasting views of the future dominate present-day discussions on societies, economies, and the environment and what lies in the years ahead. The first view is about the uncontrolled urbanization and growth analogy, and the second is the United Nations Sustainable Development 2030 Agenda (SDGs) (Pollitzer, 2019).

Information and Communication Technologies (ICT) are critical to achieving the goals of the industrial revolution and the Sustainable Development Goals. The big picture on a grassroots level exposes glaring challenges of the use of digital tools and its benefits for e-Governance mechanism for SDGs.

Below is the Human Development Index in West Bengal collated by the Confederation of Indian Industry (CII), highlighting more profound demographic disparity and challenges (Industry). The Human Development Index is mentioned here to evaluate the progress through BSK's digital communication system addressing SDGs. It helped understand the diversity in skills, purpose, and approach of citizens and the selective public needs to be addressed by the government.

Social Indicators	Measure
Human Development Index	0.69 (Rank - 8th in Indian States)
Infant Mortality Rate	38 / 1000 people

Sex Ratio	934 (females/ 1000 males)
Safe Drinking Water (% of households)	82
Electrification (% of households)	42
Life Expectancy	~ 69
Literacy Rate	68.64%
Rural Population below Poverty Hospitals/ Health Centers/ Sub Centers	32.91%

The strong risk of urbanization and other issues brings forth the extended aspects of the digital divide in urban and rural India, hampering social development. The digital divide is not just technology oriented but also skills driven i.e., though people have access to technology yet are unable to use them. Since independent use of ICT is limited, the provision to receive government services also gets restricted ultimately affecting SDGs.

With the aim of this paper to expand the e-delivery process routed toward more equitable digital futures in West Bengal, it becomes imperative to highlight the key challenges. The new conceptual framework that connects urbanization, governance, and SDG

stakeholders with the different drivers for change, aligns opportunities for impact in two axes of uncertainty:

a) Global versus Local

b) Exclusive versus Inclusive

—the analysis of the two axes leads to four scenarios of possible digital or ICT - driven futures:

a) the digital inequality

b) the digital divide

c) the digital accretion

d) the digital harmony

The objective of the United Nations-guided sustainable development goals is to galvanize governments and civil society to rise to the interlinked environmental, economic, and societal challenges faced by the world. (Albert V. Norström, 2014)

The BSKs, through its online platform addresses the above-mentioned aspects by:

1. Embracing an integrated socio-ecological system perspective
2. Acknowledging the key dynamics of public institutions
3. Creating the model of technology backed bi-directional communication system
4. Identifying key indicators to meet SDGs.
5. Capacitating people to use ICT components effectively to engage with public institutions.

The SDGs covered through the BSK model also supports others that did not directly fulfill, specific SDGs such as Goal 6, which addresses clean water and sanitation. Though water resources are not covered through the e-Gov BSK offerings, yet the applications for the irrigation process or access to drinking water binds the common thread for most indicators, from ending poverty to achieving food security to healthy lives.

The SDGs are built on the efforts, achievements, and lessons from the previous Millennium Development Goals (MDGs). The BSK system proves that ICTs create unimaginable changes but decline to translate those expectations into concrete details. Concerns that "ICT is explicitly cited" but "its full potential is neither systematically nor adequately reflected" as governments fulfill individual, universal and subsequent targets. Indeed, in emergencies, such as the pandemic, ICT components and digital communication gained traction and e-Gov's digital redressal process was the government's most effective tool of outreach. Yet the tools could not be applied universally. Rather digital access and skills divide widened and escalated unimaginable inequality in society.

This research paper acknowledges that in about two years, the government's BSK model covered more than fifty percent of the population in West Bengal through the use of new technologies and helped fulfill several SDGs partially, such as the ones documented above. But at the same time, while evaluating the BSK kind of public assistance where a via-media communication process was put in place, people became more dependent on the government system, adversely affecting SDGs. Also, the government's holistic approach to educating, empowering, and providing services to people through a dedicated online platform by assisting

them partially widened the digital gap in the short run. It is even more difficult to evaluate the results of such a process without adequate data-backed information with SDG-supported outcomes.

Conclusion

An internal MIS performance report on the BSKs connecting the e-Governance with approachable ICT -backed SDGs present a complex yet attainable design for public institutions. A robust and well-planned implementation process covering all citizens has the potential to address critical SDGs within the time frame. Though the digital skills divide among citizens hampers the practical outcomes of the BSKs to meet their own goals.

The research paper provides the following takeaways:

1) A Deeply intertwined relationship of e-Governance, ICTs exists in addressing SDGs

ii) Digital and Online Communication process plays a significant role in bridging inequality (physical and digital, both)

iii) Broadband service is a crucial enabler for all aspects of the economy, and uniform access builds an outlook for four key SDG focus areas:

a) health, b) education, c) financial services, d) energy, and climate change.

iv) Public Institutions will take decades to stabilize and evaluate their outcomes. Educating and empowering citizens wholly will be time-consuming in a fast, technology-driven society. Until then, the inequality will remain, as those reached first will be better equipped than those who started last. Keeping the unequal grounds in mind, public institutions must approach

mitigating the divide and not let it widen further. Finally, the government must find ways to bridge the divide created by partial coverage through the e-gov system sooner than later.

v) At every point, ICT offers the potential for widespread, accelerated uptake:

1. By reducing the unit costs of service delivery, b) expanding the range of services that can be offered, c) economizing on scarce resources, and accelerating institutional learning through online communities.

vi) Upskilling and independent use of ICT by citizens empowers them and effectively accelerates SDG fulfilment. While provision for government services at doorsteps is available with the BSK model, capacitating citizens to interact directly with the government will bring uniform social transformations.

vii) To harness ICT effectively for the 2030 Agenda, local governments must ensure that the entire public sector, including service delivery in health, education, energy, and infrastructure, is fully supported by high-quality ICT infrastructure.

viii) ICT must be promoted as essential infrastructure in urban and rural planning and investment.

ix) All public facilities must connect and provide adequate ICT training to public officials and service providers.

x) ICT-based solutions must be available in healthcare, education, and infrastructure.

xi) Deployment of the Internet of Things (remote sensing and control of connected devices) for public infrastructure and environmental management helps to monitor and evaluate the SDGs.

xii) Academic institutions must scale up education and incubate ICT-based solutions, including through partnerships with the business sector.

xiii) Public-Private Partnerships (PPP) must enable ICT-backed systems

xiv) Adoption of state-of-the-art indicators and real-time data collection can track progress against the SDGs.

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