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Effective Public Administration Strategies for Global "New Normal"

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Contents

Post-Pandemic Strategies to Revitalize the Human Resources Management in the Public Sector

Revenio C. Jalagat Jr. and Perfecto G. Aquino Jr.

Abstract This chapter primarily offers post-pandemic strategies to strengthen the human resource policies and regulations in the selected government organizations. It also demonstrates how to utilize these strategies reflecting their efficiency and effectiveness in varied settings. Pieces of literature were examined the current state of human resource practices implemented during COVID-19 and found out susceptible strategies and practices that addressed the COVID-related uncertainties and even beyond. Key strategies and practices identified include technologically-aided work such as the introduction of remote working, virtual workplace, and the promotion of artificial intelligence, on employee resilience and its programs, adoption of different online platforms, heightened policies on workplace health and safety, better compensation management, sustainable employer–employee relationship, and intensified training and career development amid pandemic crisis. Based on these findings, the general recommendation can be suggested that the need to revitalize the public sector through its human resource department should be a paramount consideration to address pandemic-related issues and to sustain its application in post-pandemic conditions and uncertainties.

Keywords Post-pandemic strategies · Human resources · Employee resilience · Public sector · COVID-19

1 Introduction

It is irrefutable that COVID-19 has posed an imminent danger and uncertainties in the lives of people and their mental health worldwide (World Health Organization, 2020). The threat of its spread seemed unstoppable that instill fear in the lives of many.

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Although the emergence of vaccines worldwide has paved the way in reducing the COVID cases, it did not practically eliminate uncertainties and psychological impact to many people. New trends have evolved especially in the business sector and in the field of human resource management. In the study of Caligiuri et al. (2020), they pointed out that in international human resource management literature, new ways of selection, training, and support practices can positively alleviate the COVID-19 cases. Human resource management is likened to a vehicle engine wherein it is not visible to people but is considered as the essential part for the vehicle to run. Human resources aside from company culture, health, and safety of employees play an integral role in achieving overall productivity, thus, at the verge of the pandemic crisis should be given due consideration given the changes from the user to be physically working environment into the virtual world of work. When COVID-19 started to shake the world of business, the concept of employee isolation has become popular that giving way to the idea of remote working being an essential consideration in both the government and private sector.

On one hand, a study conducted by McKinsey & Company consulting firm revealed that nine out of ten executives in many firms have experienced skills gaps due to the world's reliance on artificial intelligence and technology that may substitute human employees (McKinsey & Company, 2020). The pandemic has changed the way how companies think and perceive as well as the stakeholders that potentially leading to strategic human resource management (Crane & Matten, 2020; Hitt et al., 2020). This means that human resources management should contribute strategically and tactically to the mental health, safety, and general welfare of the employees amidst the COVID pandemic and beyond. Most affected in this crisis is the public healthcare sector where the bulk of responsibilities rest on their management in controlling if not eradicating the COVID cases. In the context of human resources and human capital, Nutsubidze and Schmidt (2021) explored that the major challenges that HR professionals and managers in this pandemic crisis are to build the employees' or workers' motivation, morale, and engagement apart from ensuring their well-being and mental health. Employees have developed a sense of alienation, stress, and isolation from the user to be the socially motivated working environment.

The study of Bourgeault et al. (2020) stressed that the different country's response to the pandemic outbreak shows the unpreparedness in addressing workforce requirements owing to the failure to predict the incurrence of the pandemic. Aside from the need for masks, PPEs, and ventilators, particular concerns lie in the availability of trained operators who will handle the life-sustaining equipment and the intensive care bed, they added. Varied responses on the issue of human resources management response from different countries in trying to curtail the insurgencies, for example, the recalling of retired health workers in the Netherlands to serve those infected with COVID-19 based on their targets (MedischOndernemen, 2021) while in Germany, the General Federation Association president has asked the retired physicians to return to duty or assist in COVID cases tracing and help respond to telephone calls and other emergencies (Aerzteblatt.de., 2020). Moreover, medical students were also utilized to work as clinical staff to ensure the managing of COVID cases (Deutsche

Welle, 2021). In Australia on the other hand, the government employed nursing assistants who are nursing students to give time for registered nurses to focus on acute cases of COVID patients.

In the public sector context, COVID-19 has also made a notable influence that led to higher job demands while changing the common job routines by government personnel (Elias & D'Agostino, 2020; Schuster et al., 2020; Shaw et al., 2020; Knepple Carney et al., 2020). The sector is faced with emergencies to effectively respond to numerous challenges particularly in ensuring the general public's health and safety, managing disruptions with the workplaces through well-founded systems, and lessening economic unfavorable effects (Sowa, 2020). In other words, the quality of service from government employees is necessary to curtail the spread of the virus as well as require agility, productivity, innovativeness, and professionalism. Accordingly, Borry and Henderson (2020) stressed that workers in the public sector must deal with emergencies through managing complicated tasks, stringent protocols along with higher risks and uncertainties within a set timeline. This pandemic indeed created a wide range of changes in workloads, work tasks, and non-work demands (Schuster et al., 2020). Viewing from these challenges and numerous government employees' tasks and responsibilities, this paper aims to outline post-pandemic strategies and measures to revitalize human resource management in the public sector. It will examine for instance the state of human resource management application at the heights of the pandemic crisis, the challenges that the government employees faced, and the suggestions and recommendations on how to implement strategies that will be sustainable in the post-pandemic era and even beyond.

2 State of HRM Implementation of Public Sector During Pandemic

The COVID-19 pandemic crisis has brought unprecedented challenges that brought pressure for both public and private organizations to change in some respects. The public sector has maintained to continuously attract and retain quality employees however, new ways of HRM can be expected in line with the pandemic crisis. For instance, the study of Sowa (2020) explored how the public sector or organizations consider new HR strategies, protocols, and procedures for implementation such as workplace changes, occupational health, and safety, flexible job schedules to ensure effective job utilization, and safety. For public managers and executives, ensuring employee welfare and safety is always the paramount consideration while taking into consideration the delivery of vital public services during the pandemic. Flexibility has become the key like physical workplace adjustments, social distancing, wearing of a mask, and other personal protective equipment, and simultaneous work timings. Moreover, many public organizations have utilized teleworking to reduce the number of employees in the physical workplace (OECD, 2020). Furthermore, public servants have realized the importance of human resource management in dealing with the pandemic crisis with the adoption of new streamlined ways and tools, new communication strategies in online platforms such as video screening, online assessments, conversations, and instructions through Microsoft teams, video conferencing, and other virtual interactive tools.

In OECD countries, the public sector has emphasized due care to its workers by undertaking arrangements on leaves and paying for workers who have been contracted with coronavirus and gave ample time to recover. Public organizations initiated extraordinary procedures to ensure that employees' mental health is protected, provided counseling and peer support, and conditioned the employees to a sustainable change for long-term post-pandemic situations (OECD, 2020). In addition, governments in OECD countries have started to assess the long-term effects of the strategies and changes that have been implemented amid COVID-19 to apply the change progressively in the long run. These may include but are not limited to remote working, technologically aided business and HRM processes such as recruitment and training, and responsive tools to restructure the workers.

In the study of Kim et al. (2020), a survey was conducted on public employees to investigate public office dynamics at the heights of pandemic crisis especially in the context of staff resilience-enhancing HRM practices, and on how it influences worker outcomes including turnover intention. Their findings revealed that the staff resilience systems and practices have prevented the cases of turnovers during the pandemic and increased the quality of public service delivery and, those who are satisfied with the resilience programs are encouraged to do well in their respective jobs. Emphasis on their results dealt on facilitating work arrangement flexibility, improving employee involvement decisions in the changes of working conditions, supporting occupational safety and health systems, institute performance counseling, and offering special leave assistance programs to pandemic affected government offices.

3 Employee Resilience in HRM Context

There is a common notion that discusses how human resource management practices contribute to the development of employee resilience. Growing attention is focused on determining the forces or factors that led to employee resilience development and its impacts on firms' performance (Bustinza et al., 2016; Kossek & Perrigino, 2016; Linnenluecke, 2015; Robertson et al., 2015). Resilience is defined as the capability to maintain performance even facing adverse situations and conditions as well as the ability to cope with any type of change (Carmeli & Markman, 2011). It also means the ability to recover from adversities and as similarly noted by Kossek and Perrigino (2016), resilience refers to the power to adjust to hardships and withstand increasing job demands. Prior studies have shown that human resource management practices impact employee resilience in various ways particularly in the aspect of psychological capital such as optimism, hope, efficacy, etc. (Bardoel et al., 2014; Robertson et al., 2015). While many types of research on human resource management practices emphasized its impact on organizational performance, these studies have started to extend investigation on HRM practices in building employee resilience in the service industry. For example, the study of Kossek and Perrigino (2016) focused on applying HRM practices in establishing employee resilience in the telecommunications sector.

However, different opinions emerged with regards to how HRM practices developed employee resilience. Bustinza et al. (2016) opined that HR practices should enable workers the ability to hone skills that overcome adversities and tumultuous conditions. However, there is a difference between HR practices in bundles than in individual HR practices as various authors exclaimed that the former has a greater influence on employee resilience (Chuang & Liao, 2010; Combs et al., 2006; Lawler et al., 2011). In emerging economies, resilience is more apparent in the private sector than in the public sector and the challenging environment that requires the private organizations to respond. Likely, resilient employees are more open to new challenges and experiences, react to varying job requirements, and are psychologically able to handle adversity (Branicki et al., 2016). Also, employee resiliency increases work engagement that can boost organizational performance. Employees were able to respond to stressful situations and consider their resilience as an important factor for adapting to change into stressful environments (Bustinza et al., 2016; Kossek & Perrigino, 2016). The contribution of HRM practices in the improvement of a firm's performance is very much evident however, fewer studies emphasized HRM's role in enhancing employee resilience in the management literature (Bardoel et al., 2014; Cooper et al., 2014; Kossek & Perrigino, 2016; Li et al., 2014).

4 HRM Work Practices During COVID

The birth of COVID-19 has shaken the world which includes the human resource management field affecting the employees in different organizations worldwide. New ways of operating a business and organizations arise for example the adoption of the Work-From-Home (WFH). According to Harney and Collings (2021), contemporary HRM practices have not anticipated the impact of COVID-19 on the performance of the employees and the organizations, and thus, high-performance work systems needed to be aligned in the context of the COVID-19 situation. The used to be traditionally embedded practices should transition into conceptualized and measured HRM practices that are flexible job design, and future-oriented approaches to dealing with a crisis (Boon et al., 2019). Collings et al. (2019) stressed that the homogenous view of strategic HRM practices that effectively worked before the pandemic provided a highly contradicting outcome as different impacts of strategies have evolved during the COVID-19 crisis among different groups of workers especially in the question of where and how they work. For instance, the concept of remote working has produced an unplanned strategy of implementation until the pandemic occurs which is considered an abrupt means of settling a case of crisis.

Considering the emergence of new trends in dealing with human resources, personal experiences by employees in overcoming pandemic crises have become a central issue that needs to be acted upon. The necessity of remote working increased as many employees believed that it can become a permanent fixture in a vast number of organizations. The research survey performed by the Guardian found that 81% of the participants in organizations all over Australia preferred the work from home even with the lessening of restrictions in social distancing and found virtual office as beneficial to them (Guardian News & Media Limited, 2021). However, remote working faced lots of challenges and one of the most prevalent is connectivity where workers find great difficulty communicating and interacting with each other without physical contact. Employees have no option than to embrace the technology and live with it. Teleconference has become the center of attention by companies and organizations worldwide with applications such as Microsoft Teams, Google Duo, and cloud-sharing platforms such as Google Docs, etc. But for employees who have never used this system before the pandemic crisis have faced a real challenge and are not confident to operate at home. Further, coordination between the employees, the HR, and the IT department is needed to determine for instance the equipment needed for the system and the policies related to the work at home arrangements. These may require a lot of adjustments especially for new team members that assume new roles amid the crisis, a priority, and concern for the Human Resource Department.

Another challenge in the use of remote working is the increasing state of demotivation of employees due to lack of physical engagement and the feeling of isolation. A recent survey conducted by Forbes claimed that 75% of employees in the US are battling to be motivated in working through a remote working arrangement during COVID-19 (Westfall, 2020). This means that the HR department also struggles with reviving the motivation and accountability of employees in their workplace. The importance of well-being and mental health of workers are perceived by organizations because of the intensity of COVID-19 damage to the employees and the workplaces globally.

Moreover, companies during the pandemic have been pressured to move from the traditional and pre-pandemic HRM policies into new normal where most of the responsibility rests on the HR Department who are expected to roll out new regulations related to COVID-19. They were required to employ and board recruits for remote working that highlights onboarding for future opportunities (Westfall, 2020). The demand for digital onboarding has started to replace face-to-face interactions with the availability of technology. Planning on ways to accommodate the returning employees and providing flexibility within the workplace.

5 Online Recruitment

E-recruitment or online recruitment is the process of contracting or hiring applicants through an electronic method or utilizing technology to identify, attract, and select aspiring workers (Patil et al., 2012). It also encompasses different technologies utilized to automate the recruitment procedures and aid recruiters and job aspirants to finish their assignments effectively and efficiently as well as supplying data for decision making (Lee et al., 2011). They added that the technologies mentioned include a talent management system, career websites, job search agents, streaming videos, applicant tracking system, and self-assessment tools, social media, and candidate relationship management system. Online platforms are used for posting vacancies, and acceptance of the CVs for interviews. Holm (2012) also defined e-Recruitment as HRM practices in an online platform that covers social networking sites; job databases; e-recruitment systems for application submission, screening, and tracking aspirants; career portals, corporate websites, and intranets; search engines; resume databases and other online sources.

Amid COVID-19, countless firms have resorted to temporary labor and contingent hiring. Many employees experienced a temporary loss of jobs like the employment agencies and those deploying laborers and cleaners to different clients. In the different sectors including the public sector, initiatives during COVID-19 were introduced by HR professionals and managers to hire contract and freelance workers to cope with deadlines, increasing workloads, and key deliverables (Public Sector People, 2020). Companies are also obliged to send their workers to their home country while their VISAs are still active but they were put under temporary layoffs with the condition that when the operations start to normalize they will be accepted back after complying by their sponsors with all the needed requirements instituted by the government. Further, several companies were deprived to work regularly particularly those that are considered "non-essentials" and the uncertainty for stable profit because of the keep changing pandemic-related rules and regulations thus, bringing fear to employees.

6 Workplace Health and Safety

Another major concern during COVID-19 is workplace health and safety. Restrictions and social distancing procedures have reduced the number of employees in the workplace and remote working has increased rapidly that enabling employees to work from home. The great challenge facing this arrangement is the re-evaluation of the workplace when employees will resume their physical work. For example in Australia, while the restrictions have been lifted and companies are restoring the normal work, safety is the paramount concern the moment the employees will return to the physical workplace while at the same time maintaining the rules on social distancing (Public Sector People, 2020). However, companies have the option of how to implement the return considering their structure, business and individual needs, space vs people, and others. Along with the ease of restrictions on lockdowns and physical gatherings are re-opening of stores and shops with the readiness of the employees for normal duty. Questions arise as to whether mass return or gradual return of workers. In England for example on July 19, 2021, the public sectors have decided to implement a gradual return to offices, and employers are given the liberty in its implementation although the legitimacy of remote working is ending for many citizens (CIPD, 2021). However; it remains to be a guideline rather than a regulation to give employers choices considering their decision risks and how they handle and mitigate the COVID-related situations.

7 American Survey on Teleworking in 2020

A survey of 10,332 adults in the US with 5,858 of these adults considered as employed in one job although others have multiple jobs but choose a job of higher weights, was made on October 13–19, 2020. This survey was considered nationally recognized as a representative survey using the Center's American Trends Panel. Major results can be described that about 64% or more than half of the respondents stressed that their actual workplace was not available for them and these have made them work at home while 36% of them narrated that they prefer not to come to physical workplace whether or not is it available for them. However, another question was raised about their feelings about returning to their workplace in the month following the date of the survey. The outcome revealed that 64% of the respondents shared that they feel uncomfortable going back to physical work and 31% said that they would feel very uncomfortable, and 5% are neutral. This means that employees prefer to stay and work from home even in the availability of the workplace because of fear of exposure and contamination of the COVID-19 (Parker et al., 2020).

A survey was subsequently made to the young teleworkers and they were asked about their motivation to work from home during the pandemic crisis. A consensus of the results expressed the difficulty of getting or feeling motivated with their jobs since the beginning of the COVID-19 pandemic. Specific outcomes showed that 42% of the employees with age ranges 18–49 years of age expressed that they feel demotivated with remote working which is high above compared to the 20% of the employees aged 50 years and older. The youngest workers proved to be the ones that openly said that they lack motivation and great difficulty to do their given tasks. This can be because young workers will easily get bored when spending more time working at home. The survey was also conducted on parents who have worked through teleworking and results displayed that they find it difficult to work without interruption, especially during COVID-19. Parents without children also expressed the same thoughts and experienced having difficulty coping with teleworking amid a pandemic.

When they were asked about the extent of their usage of teleworking during the pandemic crisis, about 81% relied a lot on video conferencing or calling through either Zoom or Webex without evidence of work fatigue, and where 59% of those were often using the platform. On the other hand, 57% used instant messaging platforms such as Google or Slack and 43% were proven to be frequent users. In other words, those who consider video conferencing, 63% shared that they are satisfied with their time spent for the platform while only 37% said that they were worn out. When video conferencing was combined with instant messaging, results revealed that about 65% expressed their opinion that it is a good substitute for face-to-face contact while 35% declared that they are not a better alternative (Parker et al., 2020).

8 COVID-19 Related Compensation Management

Martocchio (2017) opined that compensation management includes monetary and non-monetary rewards and is also termed as intrinsic and extrinsic incentives. Many authors claimed that compensation for example impacts workers' performance and motivation (Safuan & Kurnia, 2021; Sembiring et al., 2020), and retention (Elsafty & Ragheb, 2020) who further stressed that the influence of financial gains such as bonuses amid COVID crisis increased workers' retention. In many countries for instance, while the government strongly cautioned the employees to stay in their houses, provisions for financial aids and any form of support were made including small-scale organizations as a matter of a government policy. In America for example, the state through its federal government has enforced the payment of temporary sick leaves which allow both the private and the public sector workers to receive two-week paid sick leaves for isolation, COVID-19 treatments, and to take care of family members contracted by COVID-19. This work flexibility is only intended and related to the COVID-19 crisis (Andersen et al., 2020).

Meanwhile, the idea of part-time works and short-term pay has played an important role to help sustain the economic situation and the continuity of employment and business operation. Strategies were focused on work hours temporary reduction, preventing lay-offs, and promoting employee retention (Giupponi & Landais, 2020). Considering the stringent policies in managing paid sick leave payments, the human resource department task eliminates challenges and complexities on employee absenteeism in the workplace while preventing presenteeism when employees are sick (Maclean et al., 2020; Schneider, 2020). Furthermore, Maclean et al. (2020) shared that, the paid sick leave policy by the government enables employees in organizations to receive benefits not given for a long time and sustain employee motivation during the pandemic and beyond. Przytuła et al. (2020) ironed out the significance of motivating employees intrinsically to maintain retention like for example increased employee autonomy.

However, greater challenges of managing compensation are often encountered with organizations that the risk of COVID-19 cases are high like public and private hospitals. According to Hecker (2020) compensation tend to be higher if the risk involved with the job is also higher on daily basis. Employees that have a high tolerance of risk receive more compensation which the organization wanted during the pandemic and are oriented towards the importance of controlling hazards thus, allowing more health workers that are willing to take risks in return for higher compensation. So, employees who have been exposed to risks with less compensation likely leave the organization to search for better opportunities.

9 Managing Employer–Employee Relationship During COVID-19

Budd and Bhave (2010) defined an employment relationship as the association between the employee and the employer having reciprocal rights and obligations. In the labor law context, the insurgency of COVID-19 has made organizations with its employees higher challenges because of mandatory business closures and lockdowns failing to comply with the contractual obligations between the employer and employee (Biasi, 2020; Sagan & Schüller, 2020). The consequence brought by the pandemic has changed the relationship that traditionally developed between the employee and employer into a relationship in the absence of face-to-face contact (Leighton & McKeown, 2020; Spurk & Straub, 2020). Government of different countries and also companies have transitioned from a regulator into a planner and problem-solver through the creation of pandemic-related plans and programs that many organizations perceived as challenges in an organizational context with every decision affecting their employees (Sachs, 2020). Further, due to COVID-19 countries created short-term regulations that aim primarily to counter the damage that can be brought by the virus over the existing regulations so amendments were done in a short period and promptly implemented in support to employers and at the same time protect and secure the welfare of employees (Alhambra, 2020; Mangan, 2020; Sagan & Schüller, 2020). The real challenge encountered by organizations is on how to protect their workers while ensuring the continuity of their business (Sachs, 2020) which is why various countries developed laws to refrain from collective layoff. For instance, the country of Italy has strongly prevented companies from creating a collective layoff process for 60 days (Biasi, 2020). Also, several measures provided, and laws have been embraced to support workers during the lockdown and school closures to ensure the safety of the students and the entire school workforce. What was the main challenge is the lack of clarity as to when countries would declare the closure or end of the pandemic crisis (Spurk & Straub, 2020).

The uncertainties that have been brought by COVID-19 requires the government and companies to impose extraordinary measures like for instance in France, employers suffer the physical damage of the pandemic as remote working is not enforced in the country but instead treated as a voluntary choice for employees while in other countries employers have enforced remote working as a requirement especially those jobs that can be accomplished at home (Sachs, 2020). But the setback of remote working is the possibility of misunderstanding between the employees and the employer concerning employees who have not been given the chance to work from home and those who worked physically and were contaminated with the virus. This according to Sagan and Schüller (2020) may result in inconsistencies of the employers to follow the labor laws and in the absence of contractual agreement on remote working, employees may contest the management about who should be working under the work from home.

At present, COVID-19 vaccines were formulated to fight the further spread of the virus however, the challenge might arise in terms of management of vaccination campaign considering the application and the cost involve especially if organizations are classified as a small and medium enterprise where spending for one person can be costly and forms part of additional expenses for the company but has no option but to comply the country regulations (Rothstein et al., 2021). In addition, questions arise as to whether employers can enforce vaccination on their workers. They also stressed that employees might become reluctant if the employers would implement an inflexible and forcible method of vaccination which needs education of employees on the benefits that this vaccination can bring. In maintaining close ties between the employer and the employee, flexibility is required to be applied so that activities conducted by the organization will not be done out of compulsion.

10 Overcoming COVID through Training and Career Development

Undeniably, training performs an integral role whether pandemic or non-pandemic situation. However, a greater role it has played during a crisis such as the COVID-19 pandemic (Devyania et al., 2020; Hamouche, 2020). It does not only develop employee skills but during the COVID crisis, it increases employee and organizational awareness on the damage that the pandemic can bring, learn how the virus spread can be minimized, and maintain good mental health (Akkermans et al., 2020; Quaedackers et al., 2020). Transitioning from the physical workplace into remote working, however, can be challenging specifically for those employees who are not digitally equipped with the skills necessary to perform remote working. Training is a must in the utilization of ICT to enable employees to perform their jobs efficiently and effectively as well as communicate with managers and co-workers while working from home (Greer & Payne, 2014). The public sector and government organizations are confronted with the test of reskilling and upskilling their workers to adopt the prerequisites of the so-called distance economy (Przytuła et al., 2020). The human resource department of the public and private organizations is facing the challenge to design training modules that cater to the new normal realities impacted by COVID-19 that led the workers to select appropriate training methods that take into consideration social distancing rules and work to sustain the company's operation. This means that the management, HR department, and employees should go beyond the traditional training approach. Devyania et al. (2020) strongly recommended that government and private organizations should endeavor a training regimen that transitions new working procedures from short-term to long-term sustainable programs even beyond the pandemic crisis.

Aitken-Fox et al. (2020) stressed that implementing successfully remote working requires the understanding of managers towards virtual supervision of workers. The human resource department, on one hand, plays a central role in performing a strategic position to train executives and managers on how to use and manage a virtual team and support them at each stage of progress. Moreover, enable managers to overwhelm virtual challenges to ensure the smooth application of remote working and to empower team members to utilize efficiently and effectively the virtual teams (Hamouche, 2020). But insufficient training during the pandemic has caused substantial difficulties to career growth in firms. Few authors have mentioned that COVID-19 has contributed to career shock (Akkermans et al., 2020; Baert et al., 2020). In the research of Baert et al. (2020) among 3,821 workers, they pointed out that based on their analysis on the influence of COVID-19 on career outcomes and aspirations, workers were afraid of job loss in the long term and expected to receive promotions and other incentives if the pandemic did not happen. They concluded that the severity of the pandemic has ruined most of their lives and have become pessimistic because of the uncertainties if the crisis continues for a long period.

11 Post-pandemic Strategies and Measures to Revitalize Human Resource Management in the Public Sector

There can be many strategies and measures by the human resource department in dealing with pandemic-related issues, one of the important concepts that can revitalize the functions of the HR department in the public sector is employee resilience because this enables employees to work in midst of the challenges. The study of Plimmer et al. (2021) concluded that employee resilience promotes public service motivation, pro-social skills, and constructive leadership among supervisors, and is also significantly related to innovation climate in the workplace. Viewing from the Job Demand-Resources (JD-R) model, public sector managers, and HR practitioners can examine the job demand characteristics such as physical, psychological, social, and organizational demands that hinder the employees to work at their full strength during the COVID-19 pandemic as well as the job resources needed by the employees at work such as work-life balance programs, opportunities for growth, organizational support, etc. The study of Kim et al. (2020) confirmed that the HRM department of public sectors should consider the key role of employee resilience in overcoming challenges during COVID-19 and examine intently the areas in job demand and job resources and maximize the applicability of the model. This means that heightened employee resilience programs would help curtail effectively the negative impacts of COVID-19 in the workplaces. While they acknowledged that the impact of COVID-19 differs in the public sector across many countries, employee resilience plays a vital role in applying mechanisms to handle the work which requires coordination among employees and the management hence, organizational support is needed for employees that are heavily affected with the pandemic. Moreover, employee resilience and mechanism programs and practices enable employees to be engaged with their jobs, lessen negative outcomes, minimize employee turnover and turnover intentions but encourage and promote flexible working, enhance pandemic-related decision makings in the areas of health and safety of employees; working conditions, performance counseling, and offering of leave assistance programs (Kim et al., 2020).

Another strategy that organizations may undertake as a post-pandemic strategy is to redefine and tailor their policies to the current situation faced. For instance, the integration of the flexible working arrangements that produced a considerable and to a greater extent helped public and private organizations survive during the pandemic. The positive outcome of utilizing this arrangement can be sustained as a long-term strategy irrespective of the pandemic or any future undesirable situations to come. Important policies that can be integrated with the organization's current set-ups may include digital onboarding; temporary labor and contingent hiring; staff allocations for those working physically separate from those working from home; and, office space arrangement considering the social distancing policy. In line with this, the HR department has a vital role as a change agent to manage the post-COVID condition with paramount concern and persistence.

Taking into consideration the novelty of the COVID-19, these areas needed to be addressed that include enhancing compensation management system, management's extra efforts to increase more attention to building a better employer–employee relationship which applies not only during the pandemic but even beyond, and more training and development initiatives to orient the employees of updates related to COVID-19 conditions and even for future similar events and uncertainties. Moreover, acknowledging employee efforts, welfare, and well-being, and the HR department to conduct counseling to employees that suffer from contraction of COVID-19, those emotionally stressed, employees who lost their loved ones, and other related situation. Thus, the HR department should be revitalized with strategies and practices that are expected to benefit for the long term and promote sustainable policies for future uncertainties and challenges.

12 Conclusion

The incurrence of the COVID-19 pandemic has shaken the business sector both the government and private organizations especially the workforce. It changed the views and perspectives in the world of work or working environment leading to a technology-motivated nature of job from the user to be traditional and physical into a technologically-aided work such as the introduction of remote working, virtual workplace, and the promotion of artificial intelligence phenomenon. This study shed light on how human resource management in the public sector revitalizes its present structure and organization to respond to the pandemic crisis and even beyond with its proposed post-pandemic strategies and practices that will be sustainable in the long run. Insights from the different kinds of literature examined suggest that the public sector implements flexibility with the work arrangements and adopts new policies that change the pattern of work amid pandemic crises and concerning the stringent procedures and measures on COVID-19. The essence of having a technologically-aided business should be formed part of the business requirement, emphasis on employee resilience and its programs, adoption of different online platforms, heightened policies on workplace health and safety, better compensation management, sustainable employer–employee relationship, and intensified training and career development amid pandemic crisis. Furthermore, a well-defined workplace redefinition is very important, organizational support in battling this pandemic, and counseling to those heavily affected by COVID-19.

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The Usefulness of Information Communication Technology (ICT) in the Recruitment and Selection of Employees During Covid 19

Revenio C. Jalagat Jr. and Perfecto G. Aquino Jr.

Abstract This chapter examines the usefulness of Information and Communication Technology in the recruitment and selection of employees amid the COVID-19 pandemic. It also aimed to address the research questions: (1) What is the status of recruitment and selection practices during COVID-19? (2) How is ICT utilized in the recruitment and selection process? (3) What are industry responses on online recruitment and selection? (4) What are the challenges encountered by organizations in the use of ICT during the pandemic? (5) What are the strategies and recommendations to improve the use of ICT beyond the pandemic crisis? Extant literature was investigated to shed light on how the utilization of ICT is sustainable not only during the pandemic but even beyond. Key findings of the study outline the importance of the different online platforms in recruiting and selecting the workforce. It also extends to the challenges encountered by organizations in the use of ICT during the pandemic. Finally, strategies and recommendations were formulated and these include strengthening data privacy and security; application of business intelligence, HR technology, and automation; adopting a work from homework arrangements; and information dissemination to all stakeholders policies and rules related to remote working, COVID-related policies, and communication to employees and owners; communicate the importance of sanitation and protection aided by ICT, and ICT integration in business operation upon normalization and in the post-pandemic situation.

Keywords Recruitment · Selection · ICT · Online platforms · Employees · COVID-19

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1 Introduction

One of the most discussed topics amid the COVID-19 pandemic is the increasing utilization of information and communication technology (ICT). Several studies confirmed the increase in the trend of ICT during COVID-19 lockdown and quarantine (Király, et al., 2020). In a survey in the United States on March 16, 2020, data showed that digital visits to new US websites had grown by 68% and digital visits to government websites especially the World Health Organization increased by 299% when compared to February 17th of the same year (Sarault, 2020). Likewise, the dependence of people on gadgets like mobile phone users have also improved based on the data provided in May 2020 US survey with increases in the following: 37% increase in texting, social media usage 36%, shopping application by 23%, and video calling by 36%. Online payments and online orders like food, garments, and others have become a normal activity which means that undeniably the usefulness of the ICT has tremendously grown at the heights of the pandemic. In the field of human resource management, online recruitment has become the utmost attention during the pandemic in line with the implementation of remote working to prevent the spread of COVID-19. Stringent policies on social distancing, lockdowns, restrictions on face-to-face gathering, and other measures limit the company's ability to perform and be productive (Vyas & Butakhieo, 2021).

In businesses organizations, the human resource management department plays a vital role in recruiting employees especially during the COVID-19 crisis, and in assuring that employees are taken cared of in their personal and work-related concerns. Chances for physical recruitment have become a limitation during the pandemic and this hinders many organizations to interact with the applicants in a physical face-to-face environment. However, businesses have no option but to face the realities of the pandemic crisis and operate in a new normal environment. In Australia for example, the Australian Communications and Media Authority (2020) provided data on the utilization of the internet and social media in 2018–2019 which show that an estimated 91% of all the citizens in Australia have access to the internet and 60% of the Australians utilize social media daily during COVID-19. (We Are Social Ltd., 2020). This is also prevalent in the human resource management of organizations where the importance of social media usage has earned growing attention. In the health industry, recruitment of additional workforce to attend to the patients in hospitals has resorted to social media online recruitment (Russomanno et al., 2019). Moreover, the study conducted by HireVue revealed that HR technology has achieved leveraging success in recruitment during the pandemic as companies were able to use virtual interviews resulting in 54% of the respondents in the US, Australia, and the UK affirmed that virtual interviews sped up the recruitment process, 41% expressed that online recruitment aided them in selecting best employees, and 36% shared that it promotes the hiring of a diverse workforce (Nawrat, 2021).

Amid COVID-19, companies have maximized the value of using technology for the recruitment of employees as it helped them reduce the cost of recruiting voluminous applicants and the time that recruitment officers spent on each aspirant. Nawrat

(2021) stressed that 96% of the surveyed respondents expressed their satisfaction with the conduct of virtual interviews in the recruitment process. In organizations that experienced business expansion during the pandemic have felt the need to recruit more employees and face the pressure of shortage in the workforce (Giupponi & Landais, 2020). Also, with the physical distancing measures, recruitment and selection methods have resorted to virtual platforms as the most practical option as many people are afraid of COVID contagion (Carnevale & Hatak, 2020; Maurer, 2020). However; unprecedented change by organizations from the traditional face-to-face recruitment into virtual recruitment has contributed to their difficulty to transition which researchers found that mismanagement of this change can provide a negative impact on employees' productivity and retention (Carnevale & Hatak, 2020). Considering that implementation of online recruitment has been intensified during the pandemic crisis, many organizations are still in the infancy stage in assessing the extent of using ICT in facilitating the performance of the recruitment process and in ensuring the quality of employees selected through the virtual platform. Several studies have been conducted that focused on the impact of COVID-19 in the workplace and the changes in work arrangements during the pandemic, but the researchers have found limited studies that investigate how companies utilize the ICT in employee recruitment and selection. Based on this gap, this study examines how ICT is used by organizations in recruiting potential employees during the COVID-19 crisis. It also tries to address the following questions: (1) What is the status of recruitment and selection practices during COVID-19? (2) How is ICT utilized in the recruitment and selection process? (3) What are industry responses on online recruitment and selection? (4) What are the challenges encountered by organizations in the use of ICT during the pandemic? (5) What are the strategies and recommendations to improve the use of ICT beyond the pandemic crisis?

2 Recruitment and Selection Practices During COVID-19

According to Maurer (2021), recruiting employees was tough at the heights of the COVID-19 pandemic which bring devastation to some talent acquisition teams, changing demands, and a new norm for many organizations with the introduction of virtual recruitment, onboarding, remote working, etc. He added that various firms adopted online platforms, shifted talents into remote working, promote internal recruitment, emphasized diversity, and inclusion. This trend was confirmed by over 1,500 recruitment profession in about 28 nations based on the study organized through LinkedIn and supported by the information provided by over 760 million members on this website. One of the co-founders and president of Brazen Mr. Ryan Healy stated that the year 2020 was crucial for the proliferation of virtual recruitment wherein companies streamlined recruitment procedures, increased demand for workforce diversity, and searched and selected a pool of talents across borders

(Maurer, 2021). Virtual recruitment compliments the traditional face-to-face recruitment processes even when the business situation becomes normalized which means an added strategy that can be utilized for a long period.

Amid the pandemic crisis, recruitment reduced with physical work but more on remote working arrangements. In the article of Aava (2020), remote work has become the necessity of society since the COVID outbreak and a drop in job applications especially in the second half of March 2020. The global uncertainty brought by COVID-19 has urged businesses to adapt to changes in the workplace and the manner that the work should be conducted based on the market conditions and new demands. The growth of recruitment via virtual environment has practically diminished the face-to-face meetings but instead, interactions and gatherings are hosted on online platforms. A survey in 76% of the firms in the UK have embraced virtual recruitment and interviews online even before the insurgence of COVID-19 but the intensity of usage has tremendously increased during the pandemic (AnnualLeave, 2020). Recruitment of the best talents is expected to be met through adopting virtual technology at every stage of the recruitment. A LinkedIn survey in 2018 on recruitment of talents based on trends depict that Artificial Intelligence (AI) plays a very significant role in the trend of recruitment both in the current situation and in the future according to the 35% of the surveyed respondents including hiring managers, HR professionals, and human resource personnel. The use of AI increased as physical interaction started to lose its importance and dependence on technology has become a necessity rather than the used to be a luxurious option. Information from AnnualLeave (2020) revealed that technology-assisted or automated recruitment with the use of machine learning, robotic process automation, and artificial intelligence develop a concrete presence in firm staffing plans in recent times. This implies that companies and organizations are moving into artificial intelligence as an integral part of their operations for the long term.

Traditional organizations in the past relied on less-technologically aided approaches like newspapers, employee referrals, and physical appearances to the companies and organizations. However, it changed dramatically with the advent of information and communication technology using e-recruitment in the process. Transitioning from the used-to-be recruitment processes like in-person interviews, printed resumes, handshaking, and other physical activities are challenges that companies faced during the pandemic and even beyond. According to PeopleFluent (2020), the cases of COVID have started to decline and stability in managing the pandemic is improving, however; questions still linger on what to do next or how to move forward? A present, companies have resorted to strategies on how to recruit during the health crisis and these include social media ad campaigns, video interviewing, automated communications, interview scheduling, and online tracking of information relative to recruitment. The growing popularity of the concept of work from home has been integrated with video interviewing and looking for top-caliber employees across the globe has become part of the recruitment routine that enable talent acquisition managers, HR professionals, and HR personnel to maximize the use of ICT to establish global networks of talent pools (PeopleFluent, 2020).

3 Utilization of ICT in the Recruitment and Selection Process

Bartram (2000) has identified the use of recruitment online as one of the technological developments in the human resource management field. Through internet-based recruitment, employers can perform online job advertisements using varied platforms and applications will be received within the time frame or scheduled time. For example, the study of Nikolaou (2014) explained the importance of using the job sites or job boards in enabling employers to advertise through a wider audience online which was also highly effective for both the job aspirants and the recruitment company. Likewise, firms have created a unique job website for advertising solely or job vacancies. The ICT usage has facilitated firms mechanizing their job sites to become a valuable and useful tool in drawing aspirants' interest and sustaining their interest to work with the company of choice (Lievens & Slaughter, 2016). For instance, firms can consider the application of testimonials through videos in their job sites by emphasizing why they work in their present organizations as well as to recruiters discussing the recruitment processes to the concerned applicants. Moreover, companies may also take on additional steps in recruitment like enhancing website attributes, evaluating site visits, tracing, and monitoring applicants via different online platforms such as social media.

The advent of social media as a recruitment tool emerged at its full strength during the COVID-19 pandemic when people prefer to use it online than in physical gatherings. Social websites have become a vital development in the digital world wherein the use of ICT has drawn interest to many researchers globally because of its potential to help ease the recruitment and selection process and other responsibilities of the human resources in organizations. Nikolaou (2014) stressed that social networks provide the applicants the opportunity to promote networking in a low-cost yet effective means of attracting inactive applicants or to those job aspirants who are not actively searching for jobs. Recruiters became active in providing attractive offers and suggestions to the applicants online during the pandemic as several studies currently investigate the wide recognition of social media and its usefulness for both job seekers and recruiters (Johnson & Leo, 2020; Zhang et al., 2020). New reports related to the COVID-19 declared that in many kinds of research the use of the ICT such as LinkedIn has become an urgent need for the job seekers and the recruiters as one of the shreds of evidence of the extensive utilization of social media for recruitment and selection purposes (Wilding, 2020).

Furthermore, the ICT has played an important role in the screening of potential applicants. The so-called technology in the screening process encompasses the examination of the applicants' existing data concerning their fitness to the position vacancy. Traditional practices applied by companies in handling and executing applicant screening such as highly sensitive positions comprised of security forces and army have been transformed into online motivated activities. According to various authors, during the pandemic, the concept and application of Cybervetting evolved

(Berkelaar & Buzzanell, 2014). They define Cybervetting as the utilization of non-institutional and non-governmental sites or tools on the part of the recruiters to obtain unofficial personal data regarding the existing or prospective workers. In the newly published research of Cook et al. (2020), they formulated a new measuring scale to assess the impact of cyber vetting on the applicants and they found that it builds a negative impact on them. These applicants think that websites such as the professionally-oriented LinkedIn help employers access the applicants' CVs or their application letters although they differ in searches when compared to the personally-oriented websites like Facebook, Instagram, etc. (Nikolaou et al., 2019).

The technology has accelerated the communication processes during COVID-19 because of the physical restrictions, social distancing, and other pandemic-related rules. The used-to-be time-consuming tasks during the screening process have been eased and addressed by using for instance the applicant tracking system (ATS) that lessens the period of the screening procedure, delivering efficient CV storage, resume analysis and keyword search for an exceptionally huge quantity of applications. On the other hand, ICT also has been utilized in the selection process and old practices by psychologists have seen technology being applied to online testing (Ryan & Ployhart, 2014). But currently, more attention regarding the selection is focused on two methods namely the asynchronous interviewing and gamification/games-based assessment particularly in connection to aspirants' responses and experience. The asynchronous interview is also known as digital/video interview is an interview type wherein applicants are obliged to record their feedback to a set of interview questions and submit the same online (Brenner et al., 2016). This video interview is very useful during the initial stages of the selection method to evaluate the minimum work conditions and decrease the pool of applicants. For executives, interviewing voluminous job aspirants without face-to-face interaction can be difficult at the beginning but as it is continuous, they manage to conduct a series of interviews with multiple raters to be included in achieving collective agreement on whom to select and how they will be selected based on interview results.

According to Langer et al. (2019), firms that are concentrating on data analytics in selecting job aspirants through digital interviews attempted to measure several pointers in ICT utilization which include but not limited to the frequency the employees blinked, the time between responses, word speed, changes in body temperature, etc. Some also used sensor devices, automated extraction and data evaluation, and visualization. However, aspirants who have desired to apply to international work were able to save time and money (Guchait et al., 2014). But this is not always the case considering that Langer et al. (2017) in their earlier study about digital interviews before the pandemic depict that there was no significant difference between using the digital interview and the traditional interview practices. It also showed that there was no significant difference in organizational attractiveness levels, and applicants believed that video interviews may lead to privacy issues and concerns.

The second recent selection method which many considered as a key change and development is the gamification and games-based assessment (GBA). Georgiou et al. (2019) define gamification as the integration of game elements in non-gaming contexts such as employee recruitment and selection. Gamifying as a method of selection emphasized the change and implementation of a gamified version of an existing selection method such as application to the personality test and situational judgment. This means that existing methods of recruitment and selection can be retained but integrated with the concept of gamification or using game elements in the recruitment to foster a fun, exchange of ideas, transparency, and at the same time challenges. Using for example the computing and mobile services, applicants are exposed to address questions in a gamified or virtual environment. In the study of Georgiou et al. (2019), they found that applying gamification in recruitment and selection attracted many HR professionals as they provide enormous benefits that are not found in the traditional recruitment and selection methods. They have cited an example that the method has brought attention to younger applicants and consider it a valid and reliable method. Nevertheless, considering that gamification is a new method there is still a need to conduct more studies to validate the effectiveness and applicability in the context of both theory and practice.

4 Industry Responses on Online Recruitment and Selection?

According to Business Wire (2021), various firms have used HR automation software in their workplaces to enable recruitment to be faster and these are evident in the aspects of attraction, identification, engagement, and transformation of candidates into applicants' status. Quite a several companies have utilized Artificial Intelligence (AI) in the recruitment process and various platforms were utilized in pandemics including interviewing software, tracking software for candidates, and relationship management software to augment the recruitment procedures throughout the world (Business Wire, 2021). Moreover, the service industries have implemented as part of the processes in HRM data analytics to track candidates to ensure that they only hire applicants that suit the company requirements and do not waste time in the entire process of recruitment and selection.

The direction of online recruitment has shifted from physical work into remote working arrangements. This implies that hiring and selection practices have been affected by the pandemic COVID-19 crisis that challenges firms to respond to the growing demand for ICT. Applicants have the flexibility to attend interviews online and employees are given the option to work at home while maximizing the use of social media and other online platforms. On one hand, Green et al. (2021) study emphasized the use of Facebook as a recruitment strategy by the Australian companies and individual users through the two-advertisement method: the no-cost option or the joining existing community noticeboard Facebook group, and the paid option or the paid Facebook advertising campaign. The no-cost option contains a specific Facebook page for community noticeboard groups anchored on the Australian laws and regulations of the territories such as urban, regional, and those remote areas.

Whilst the paid option of Facebook advertisement also considers Instagram which was created to employ employment candidates.

5 The Challenges Encountered by Organizations in the Use of ICT During the Pandemic

One of the struggles of the companies amid the pandemic crisis is staffing. Ployhart (2006) described the term staffing as the means of attracting, choosing, and preserving capable and skilled staff to meet the firm's goals and objectives. The COVID-19 has changed the ways in how the staffing functions and organizations have been redesigned to become dynamic to survive in the marketplace (Campello et al., 2020). Many organizations still prefer the face-to-face interview but because of the stringent rules and regulations on social distancing, reduction of the workforce, and others, organizations had no option but to undertake virtual recruitment and selection (Carnevale & Hatak, 2020). With the unprecedented change in the work structure and the company's workplaces, not all employees are confined to new technology and thus, the change has posed a real challenge for organizations (Maurer, 2020). Bansal et al. (2020) stressed the importance for organizations to examine the social and environmental impacts of investing in employees and sustaining them along with the utilization of new technologies and other innovative solutions to achieve a competitive edge. The usefulness of the ICT in the field of HRM begins with the recruitment and selection process where HR professionals and organizations' management investigated especially in the heights of pandemic and in exploring ways to sustain its utilization in the post-pandemic situation.

Meanwhile, a survey was conducted by the Organisation for Economic Cooperation and Development (2020a, 2020b) to understand the challenges brought by teleworking, digitalization, new business practices before and during the COVID-19 pandemic crisis. A survey by the Canadian Federation of Independent Business showed that the percentage of company owners who operate virtually or online reached 26% while 30% experienced growth in sales, and 25% declared that their business status remains the same before COVID-19 and that the use of online platforms does not contribute much impact (CIBC, 2020). The latest research conducted in Japan found a disparity between teleworking and the size of the firms wherein in the large firms, teleworking has been utilized at 48% while in small and medium enterprises (SME), the teleworking utilization ratio was only 10–20% (Okubo et al., 2021). The SMEs lack infrastructure and the lack of worker skills to use the online/digital tools and platforms while many of the skilled employees were found in large corporations. As evidence, many studies confirm the findings that larger corporations have seen the high application of teleworking compared to SMEs (Okubo et al., 2021).

Furthermore, a similar survey conducted in Europe has seen the need for small-scale businesses with 50 employees or below with only 56% having access to online platforms compared to 93% of all the firms with more than 250 employees

(McKinsey, 2020). It was seen the prevalence of challenges in the utilization of the ICT in the SMEs as their access to online platforms are limited when compared to large firms although different countries have rules and regulations on which firms should be considered as SMEs according to size and other factors. In Hungary, a study conducted on June 23, 2020, about the usage of ICT during the COVID-19 crisis revealed that 24% of the SMEs plan to go back to their business method with less ICT application before COVID-19 while 41% expressed that they will continue to use ICT application developed during the pandemic for its future operations. This divided opinion of businesses in the country calls for more studies and surveys to explore the different perspectives of business owners in the country.

Another challenge that organizations and individuals experience is related to privacy safeguards. Crimes related to ICT are increasing that cautioned the governments to assure that the use of the ICT should be operating following the rules and regulations of the state (Columbia University, 2021). During the pandemic, the public risk concerning digital security by mischievous criminals is rising proliferating Corona virus-related scams and malicious campaigns targeting online platforms. Cautioning the public users whether individuals or companies are essential actions that the government should undertake as the magnitude of these crimes increases daily (). Government and public health organizations were already tied in combating the pandemic cases, however; the challenge is also faced with the raising of awareness on the potential danger and damage with the use of ICT especially on the vulnerability of the SMEs to adopt digital information that may damage the SMEs reputation (OECD, 2020a, b). Malicious actors in 2020 increase their intensity in attacking web users in including companies during the pandemic through phishing campaigns utilizing COVID-19 content such as Corona virus-themed email intended to deceive the recipient or an attachment with a filename; emails impersonating the government in the United Kingdom and Australia as well as emails impersonating leaders or institution like the World Health Organizations and imitating genuine initiatives through web applications and emails.

A survey conducted by the Security Firm in Italy has shown that phishing attacks are higher in Italy from February 2015 to March 2015 over countries such as Israel, Japan, Benelux, France, Germany, UK, and the USA (see Fig. 1). Italy accounted for 10% of all firms in the country that experienced COVID-19 related phishing campaigns through emails with attached mischievous attachments.

The above figure further revealed that crimes and irregularities in the use of ICT in Italy had surprisingly risen in 2020 compared to their monthly average in 2019. This has alarmed government security, especially during the pandemic crisis. Countries like Israel, France, and the USA also shared almost the same experience, however; their year 2020 experience is comparably the same as their monthly average in 2019. In the USA for example, cybercrime targeted the healthcare and the manufacturing industries in 2020 asking the victim recipients to install an attachment or software to aid in looking for a cure for the Coronavirus but the real intention is to steal credentials for cybercrime purposes. On the other hand, UK and Benelux were seen to have low cybercrime experience compared to other countries abovementioned.

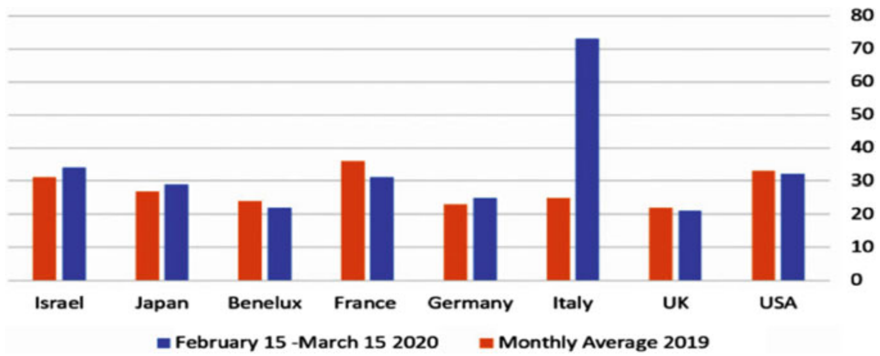

Fig. 1 Spike of phishing attacks in Italy. *Source* Cynet

In the context of human resource management, the cybercriminals attacked the work from home from work arrangements as a gateway to new ways of identity theft by instituting COVID-19 fear-inducing messages. In the study conducted by Deloitte AG (2021) online to 1,500 working-age groups by ages, gender, and regions and with age range, 16–64 years old in Switzerland on April 10 to April 15, 2021, and findings revealed that employees' productivity is hampered because of the data security and cyber inadequacies and poor infrastructure in terms of ICT. The home from work has become a risky activity for businesses during the pandemic. Moreover, a fourth of the total respondents have received fake emails, phishing struggles, unsolicited emails shown in their company website accounts since the start of the COVID-19 crisis.

6 Strategies and Recommendations to Improve the Use of ICT Beyond the Pandemic Crisis

The utilization of ICT plays an essential role amid the pandemic crisis which also includes human resource management. In the health care industry, the ICT aided the management of the hospital to recruit and select additional workforce to cater to the growing cases of COVID-19 patience. To sustain an effective implementation of the ICT during and beyond the pandemic, strengthen the data privacy, security, and ownership. Musto et al. (2020) postulated that the struggles faced with the utilization of the ICT are that each information gathered is accompanied by risks for employees' well-being and safety. It simply means new information can contribute to new risks for the employees and the management. For instance, in a company setting, an employee or an employer using ICT for job matching or a compliance-driven system may lead to identity theft if the company has no vigorous provision on data privacy. Further, cybercriminals can steal personal and corporate information at the expense of individuals and companies.

Secondly, ICT enables businesses to keep their operations running smoothly during the pandemic through developing a corporate continuity project that is reliable and feasible along with the application of business intelligence. On the same note, the automation of the human resource functions from the recruitment, selection, and to the start of work by the candidates. According to the KPMG (2020b), more investment in human resource technology enriches human resource analytics. Investment in HR technology may require many adjustments, but it reaps long-term benefits. The adoption of recruitment and selection practices that employ the application tracking system or e-bots have gained businesses and stakeholders' attention in COVID-19, however; the management should intensify plans to the change of roles within the human resources in fully adopting these new technologies for the long-term purpose (KPMG, 2020a, b). Video interviews were proven to be an effective online platform during the pandemic, but employees and staff needed to internalize and more acquaintance on the use of different video conferencing tools to prepare for uncertainties of face-to-face contacts (McKinsey & Company, 2020).

Intensifying remote working at the height of the pandemic is another way to improve the ICT utilization however, it demands dedication and finances from all workers in the organization. The concept of remote working is to develop creativity through ICT utilization as means to combat the negative impacts of COVID-19 and be sustainable in operations for a long period. With the right technology and cooperation mechanisms for a mountable, dependable, and flexible job, remote workers perform their tasks efficiently and effectively (McKinsey & Company, 2020). Employees play a big role in ascertaining that they adjusted with the new requirements of work and in the transition from the traditional methods to the work from home arrangements.

Emphasis on business communication is co-equally important with other improvement initiatives mentioned. Managers and executives should fully understand their vital role in managing and controlling this epidemic because the employees and the entire workforce need to respond to the crisis. Active and practical approaches are needed from leaders to deal with the stakeholders. These approaches are enumerated in the section.

- **Remote Working Procedures and Orientation.** With the unprecedented change of work arrangement from the traditional face-to-face into the work from home employee engagements, companies should conduct orientations for the transition and enforce remote protocols and virtual devices that workers can keep on and utilize when working from home.
- **Well-disseminated COVID-Related Company Policy.** Utilizing the ICT in communicating the new standing and long-term policies related to the pandemic should be timely circulated to all concerned stakeholders. The objective is to ensure that new policies amid the crisis are communicated to all stakeholders especially the employees and the owners.
- **Communicate the Effects of COVID-19 to all Stakeholders.** The status of almost all businesses is full of instability and uncertainties, some are forced to temporary shutdown while experiencing permanent closure. Whatever the business situation, the most important is that every piece of information should be

communicated to all stakeholders so that they will know the status and plans that companies must undertake to fulfill their goals and objectives and with the help of ICT.

- **Convey appropriate sanitation and protection.** Several firms took serious consideration in disseminating information about COVID-19 to their employees and other stakeholders to keep updated with the quickly changing news related to the crisis and necessary precautionary measures be taken to ensure that employees in the organization are aware of the impacts of COVID-19 in the workplace.
- **Ensure ICT integration when businesses are normalized.** While no one knows when the COVID-19 pandemic ends, companies should devise business continuity plans with ICT utilization and be communicated to all stakeholders especially when business operations are restored to normal function.

Furthermore, practical strategies can be adopted by companies through their IT departments to ensure the safety of the employment of ICT. In implementing and sustaining the work from home (Remote Working) arrangement, employees should undergo orientation or training on managing sensitive data or information while imposing the company's code of conduct incorporating remote rules and regulations. Remote working is prone to cyber-attacks, so workers need training and understand their roles and functions adequately. Secondly, routine checks and evaluations should be done to make sure that security measures are performed to protect new IT solutions and their effectiveness in implementation. Thirdly, the widespread ransomware attacks have been increasing during the COVID-19 and there is a need to set up monitoring security devices to facilitate companies to detect and identify cyberattacks or suspicious messages as well as safeguard sensitive company information. Fourth, companies should certify the security effectiveness of their suppliers, service providers, and other partners. This means that cyber and data breaches can cause a business breakdown if weaknesses in the supply chain are experienced.

7 Conclusion and Future Studies

This chapter assesses the usefulness of ICT in the recruitment and selection of employees at the height of COVID-19. The literature examined showed the importance of ICT not only in the changing manner of work or work structure but also in the recruitment and selection processes. Key findings revealed that recruitment and selection using online platforms are vital to the company's battle against the pandemic which includes online/virtual interviews, onboarding, AI-aided recruitment, and automated recruitment that use machine learning, robotics process automation to fulfill the staffing plans. Strategies were also formulated and applied to integrate social media-based recruitment comprising of social media ad campaigns, automated communications, video interviews and scheduling, and online information tracking of applicants. The global talent of pools was formed through ICT utilization during the pandemic.

Furthermore, the use of ICT benefits both the job seekers and job recruiters just like the use of LinkedIn and other platforms such as cyber vetting, Facebook, Instagram, application tracking system, gamification, HR analytics, etc. However, challenges and difficulties were experienced in the use of ICT particularly in the small and medium-scale enterprises (SMEs) considering the unprecedented changes in work structure, lack of IT knowledge by the employees, investment requirements, and privacy safeguards. Malicious actors of cybercrime increased during the pandemic and penetrated companies and individuals as victims and the growth of phishing even in developed countries such as Israel, Japan, France, Germany, UK, etc. On the other hand, amid these challenges, sets of recommendations were suggested to ensure the effectiveness of the ICT use not only during the COVID-19 pandemic but even beyond as enumerated: Strengthen data privacy and security; application of business intelligence, HR technology, and automation; adopt a work from homework arrangements; and information dissemination to all stakeholders policies and rules related to remote working, COVID-related policies, and communication to employees and owners; communicate the importance of sanitation and protection aided by ICT, and ICT integration in business operation upon normalization and in the post-pandemic situation.

However, this study also acknowledged its limitations. Firstly, it is limited to the use of literature, surveys, studies to address the research questions and objectives, hence, the need for empirical studies are needed to quantify the study findings. Secondly, the study is mostly limited to the use of ICT in recruitment and selection and the other areas of HRM practices have not been explored lengthily. Finally, a follow-up study can be done to explore its applicability to industry, and more application to the SMEs to see the bigger picture in the Gulf region and to the developing countries.

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Use of Spatial Information Management for Sustainable Development in a New Normal Environment: A View from the Organizational, Agro Sphere, and Healthcare Perspective

Sayma Zia and Munaza Bibi

1 Introduction

In this chapter, the comprehensive nature of the spatial management system is presented from the perspective of sustainability in a new normal environment. This chapter begins with a brief general overview of the following aspects:

1. Overview of Sustainable Development and link with a spatial information management system.
2. Spatial information management system.
3. The Perspective of Sustainable Development and Spatial Information Management System for Organizations.
4. The Perspective of Sustainable Development and Spatial Information Management System for Agro Sphere.
5. The Perspective of Sustainable Development and Spatial Information Management System for Healthcare Sector.

2 Sustainable Development

Three facets are intricate in sustainable development including the political facet, economic facet, and societal facet with the protection of the environment to fulfill the needs of people without affecting and compromising the future generation's need. Referring to sustainability in three facets, in a new environment, technological standpoint plays a vital role. Information technology can be an important catalyst to

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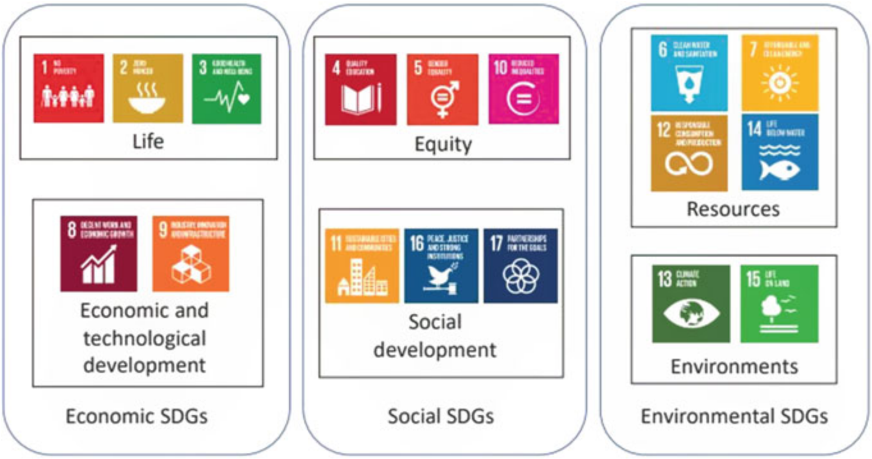

Fig. 1 Categorization of SDGs as per the needs of humans (Wu et al., 2018)

all of the below-mentioned SDGs, while technology and information management plays a vital role in the attainment of the SDG. Therefore, the achievement of these goals is noteworthy for humanity as well as for our earth. Keeping the standpoint of needs related to humanity—the 17 goals of SD can be categorized into three major dimensions as follows:

- Social,
- Economic, and
- Environmental (Li, 2020).

Thus, the categorization of SDGs is illustrated in Fig. 1. Subsequently, under the awning of the above-specified dimensions, several SDGs can be classified into different groups as per the diverse viewpoint of humanity needs including self-fulfillment, psychological and basic needs (Hopper, 2020).

Accordingly, the sustainable development goals are specifically focusing on 5P's which are explained below in Fig. 2:

- People,
- Prosperity,
- Partnership,
- Peace and
- Planet.

Accordingly, the use of spatial information management systems and their tools have gained popularity during the period of Covid 19. The importance of spatial information management comes to the surface during Covid 19 emergence. As Müller (2020) explicated that in the international federation of surveyors FIG forum regarding spatial information management as follows:

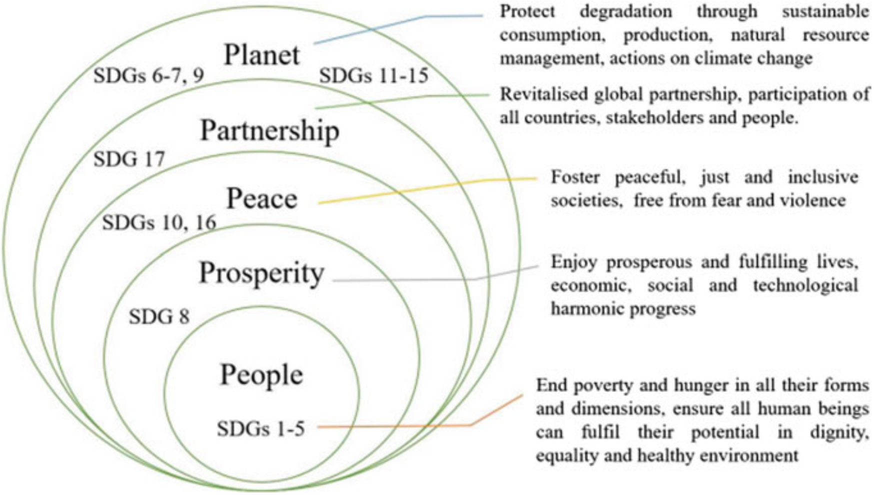

Fig. 2 The 5P's or fundamental of SDGs (Wu et al., 2018)

One of the most impressive examples of how phenomena evolve and space is the spread of the SARS-CoV-2 virus. Knowing in real-time where a local outbreak occurs, how outbreaks evolve, how many people are affected at any given location is of utmost importance to take appropriate measures. As with many other applications, well-established spatial information management, including an implemented system for digital information exchange can help to provide the required spatial information in near real-time.

3 Spatial Information System

In the environment of uncertainty where different sectors are facing the issue to maintain their sustainability due to the occurrence of virus-like Covid 19 which not only affects individual health but also influences the organizations and economy as well around the world. To make the operations ongoing in the organizations by keeping the supply chain maintenance, and health care system functioning: information management system is a central constituent to function effectually in the environment where restrictions have been imposed for protecting the health of each member of the society. Therefore, use and execution of data-driven modeling via entailing the activities related to information management in terms of acquisition as well as transformation, structuring along with the interpretation of data in order towards producing valuable information, to disseminate the knowledge for effective planning, decision making, and advocacy (Boeing, 2021).

In this regard, a spatial Information system is viewed as a system that is primarily a software product having numerous components that are connected with the other systems as well as devices present in a particular environment via a data management system to store and manage data that is linked to a graphics management system for display of visuals whereas two systems are connected in one direction via graphic workstations towards the users with the available means of interface and language interpreter command (Laurini & Thompson, 1992).

While the spatial information system is comprised of various tools including geographic information system (GIS), remote sensing, and Global Positioning System (GPS) (Singh et al., 2021). The use of the GIS tool can lead to improving the manager's awareness level in the presence of accurate data for spatial analysis with the prompt access to databases and information to make a comparison of both currents as well as forecasting of variations that will happen in the future (Kurowksa et al., 2021).

The spatial information tool GIS not only collect information yet it also verifies, accumulates, integrate, process, and spatial data release related to geographic space. The users of data can syndicate the descriptive data regarding the location of the object that is being analyzed to produce a thematic map to conclude. Figure 3 indicates the

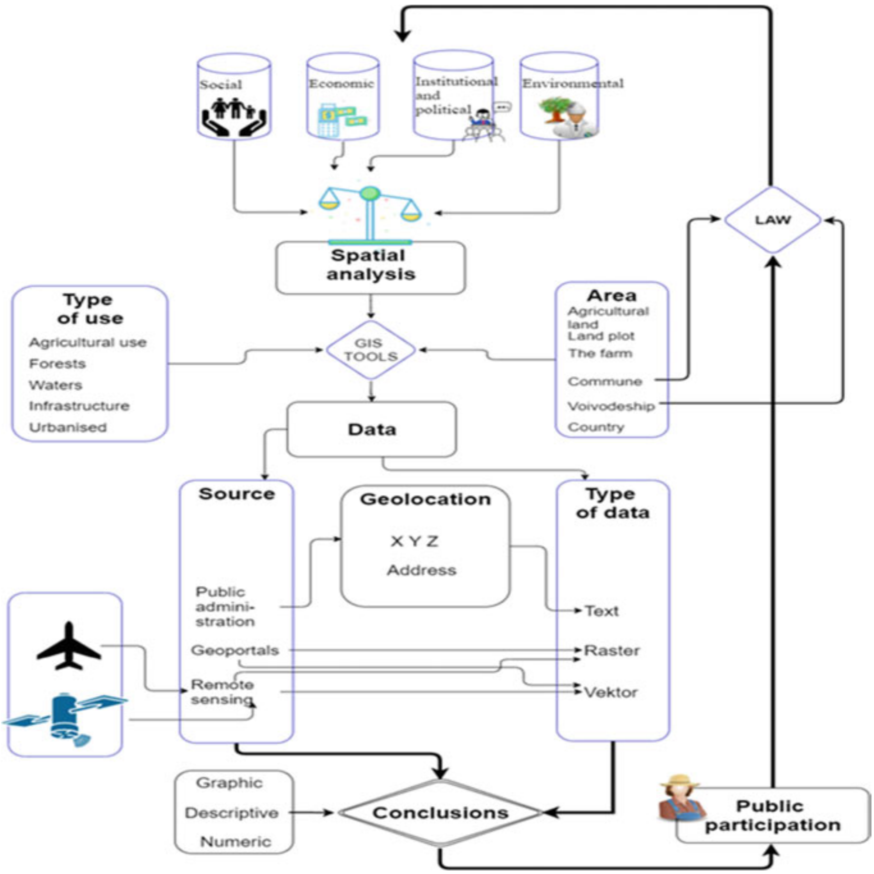

Fig. 3 For spatial analyses: the scope, sources, and applicability of data (Kurowksa et al., 2021)

function of the system in terms of the social, economic, institutional as well as political, and environmental domains along with its use in different areas with the help of data and spatial analysis tools to map out an inference.

In the context of the public as well as the private sector, spatial information is seen as a resource to improve the efficiency level on a parity with the personnel along with the management of funds concerning making decisions effectually on time (Foster et al., 2001). In a similar context, GIS is viewed as a decision sustenance system that has all the important elements of information system but the main variance of GIS with other systems related to information is geo-referenced data that usually comes under the umbrella of the GIS (Stanton-Chapman & Chapman, 2006). Moreover, spatial or location information along with other features that are associated in the direction of this location is an imperative GIS component while information of this type is significant to the further analysis of spatial and temporal data (Liu et al., 2014).

From the viewpoint of different administrations areas, spatial information systems from a sustainable perspective play a crucial role in the management of data in the following realms:

- Administration of land,
- Natural resources,
- Marine,
- Defense,
- Communication,
- Transportation, and
- Availability of services to improve the business outcomes as well as economic development by making timely decisions through the utilization of information via spatial data (Mueller, 2010).

Figure 4 is showing the spatial information system that is comprised of disks to store data in the form of alphanumerical, graphic, and image form along with digitizing tablets as well as scanners for graphic data entry on one side, whereas to present the results plotters and printers are used. Accordingly, to exchange the data and information with other people or organizations, or geographic areas, it is possible through employing the computer system and spatial data that must be linked with a communication network to share information promptly.

4 The Perspective of Sustainable Development and Spatial Information Management System for Organizations

Due to the advent of Covid 19, the sustainability of public and private organizations, as well as environmental concern, became a question mark. Seeing the United Nations SDGs that are primarily focusing on the health and promotion of wellbeing

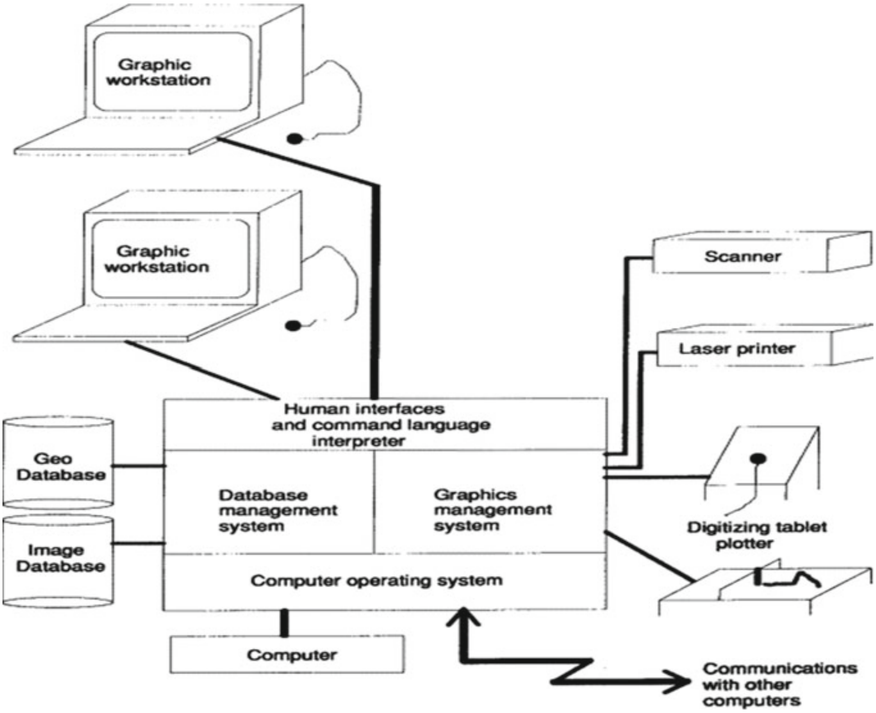

Fig. 4 The physical elements of a spatial information system (Laurini & Thompson, 1992)

from children to adults with the prime goals of ending the diseases like AIDS, water-borne diseases, tuberculosis, and other diseases that are communicable by 2030 (UN Development Programme, 2015). But on the other side, the emergence of COVID 19 emerges and it leads to threaten the attainment of sustainable development goals. Not only it has affected this goal but also threatens the realization of two other important aspects such as economic and social development. Yet, the characteristics related to the transmission of Covid 19 have not been recognized sufficiently (Control & Prevention, 2020).

So, in order to manage the organizations in the era of the current situation, technology has played a vital role to protect the wellbeing as well as the sustainability of an organization. Likewise, spatial information technology in the form of GIS is primarily notable through the inclination for organizations instead of focusing on the individual to provide the focus for making decisions which eventually fallout in strengthening the link of technological innovations with organizations to attain the long term operation and sustainability (Campbell & Masser, 2020).

Furthermore, GIS is seen as a specialist tool that works for a specific department or we can say in a project that requires only a small outlay as well as a small group of human resources to handle the tool. In addition, organizations can gain the benefit at the most general level through investment in technological facets for the management of information. Benefits can be accrued where the incorporation of technological facet allows a specific level of output that is to be achieved with a reduced cost for efficient operations (Reeve & Petch, 2019).

Thus, in the era of rapid technological changes, there is a need to train human resources to prepare for the future challenges confronted by public sector organizations for their sustainability (McQuiston & Manoharan, 2021). As it is reported in a study that adoption of the latest technology can result in improving the productivity of a firm (Khan et al., 2021). On the other side, to maintain the well-being of employees, a system is developed that receives information from the sensors to the central software regarding the position of an employee, vitals assessment, and see the movement of objects by the employee to take necessary actions promptly.

Referring to the sustainability of public and private organizations; the use of spatial information systems and associated tools play a vital role in the current situation of Covid 19. For instance, (Quinn & Rohrbaugh, 1983) make clear in their study regarding organizational standpoint at various levels: firstly the more general level that deals with rational and natural system facet. As far as the rational model is concerned it is more focused on integrating, formalizing as well as controlling on one side, while the natural model is focused on differentiation, impulsiveness as well as flexibility.

Additionally, assessing from the organizational perspective, numerous organizations are focusing on formulating strategies to improve the client as well as efficiency at the operational level. However, all the efficiency at different can be possible only with timely receipt of information, storage, and dissemination of information at all management levels, employees, customers, government, and suppliers to maintain operation effectually. Furthermore, Fig. 5 is specifying the models at the organizational level with specification of means and ends at conceptual orientation as well as internal and external facets with middle range orientation while the differentiation and integration at general orientation.

5 The Perspective of Sustainable Development and Spatial Information Management System for Agro Sphere

In addition, Sokolska et al. (2021) specified in their article to ensure the management of public administration issues; communication effectively plays a crucial role particularly from the context of decentralized power where all the functions of management are conveyed to central towards local authority for the sustainability of the agro sphere. Thus, in such a context use of technologies is needed in the public administration domain for effectual communication in the agriculture segment.

In the scenario of developing countries—the essential sector that is the part and parcel for the survival of the people be located in the rural areas as their existence primarily relies on the productivity of the crop and sell the crop to the suppliers and distributors in order earn the profit for their efforts. Owing to the issues faced by

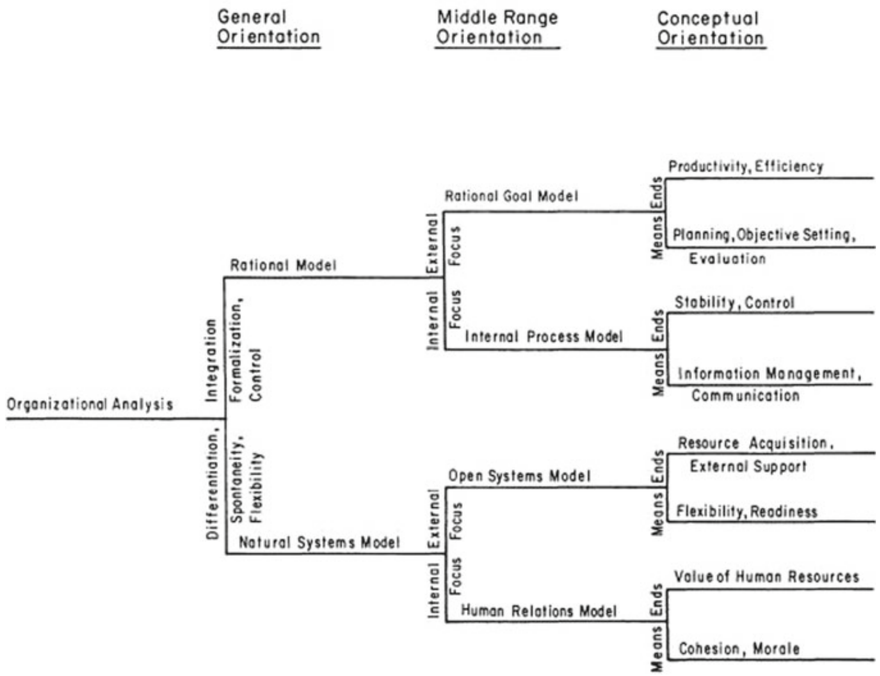

Fig. 5 Models at the organizational level (Quinn & Rohrbaugh, 1983)

the agricultural segment around the world nowadays just because of the two main reasons that include:

- Primarily, limited production of the yields (agricultural production) on one side whereas the population of the world is increasing at a faster rate. This means that limited yields of agriculture have to fulfill the need as well as feed the fastest growing population on the other side.
- Secondly, some factors that are creating hindrance and causing degradation around the world contains the scarcity of natural resources like shortage of water, declining fertility of the soil, and agricultural land production due to urbanization and climate changes (Wu et al., 2018).

For spatial information system use in agriculture context, the government must take appropriate actions to support the system as it can help to manage, plan as well as develop the appropriate use of land with timely availability of information to a usage related to a different soil. The way information system related to soil is linked with the spatial information system of the geographical system can help to display the data point and store data for interpretation and development of a framework for irrigated agriculture along with the use of the digitized format for proper utilization of land (Roy & Grealish, 2004).

Focusing on precision agriculture or farming is an important technological intensive tool, that focuses on making the agricultural output more climate-smart via declining its influence on the environment but entails the support of GPS—a diverse set of sensors aimed at assessing the soil moisture as well as nutrients along with the maps that are based on the geo-referenced for specifying the different soil properties nevertheless when these tools like GIS and GPS together are used might fallouts in expanding the yield, surges the resources saving as well as management and simultaneously lessening the environmental influences (Roy & George, 2020).

In such circumstances, technology plays a role in the agriculture context that could upsurge not only the efficiency level but also productivity and sustainability via presenting and offering prompt information for making a decision as well as planning on time. For instance, in the farming or agriculture sector use of wireless sensor networks from autonomous power source dispersal, irrigation valves, and the monitoring of switches operation on one end, whereas control of remote area might effectually progress the production of quality farm and agriculture products (Wu et al., 2018).

Accordingly, there are specifically five main features needed for execution of agricultural policy in the milieu of improving the yields is the better management of spatial data in the form of a national registry of farmers system, registration of unregistered land, and improvement of old land administration system (LAS) data, digital ortho base production, land registry, and cadastre information system along with the establishment of a functional land parcel identification system (LPIS) (Yomralioglu et al., 2009). However, the development and management of spatial data is not an easy task; for this government needs to formulate a strategy to maintain and integrate data for effective operations.

Figure 6 is specifying the link among the comprehensive view of all constituent data fields related to a soil information system such as

- Soil classes,
- Profiles,
- Results of laboratory analysis,
- Mapping units,
- Soil and
- Interpretive maps.

Therefore, the field data is primarily representing the point data, which is geo-referenced that uses the global satellite positioning system units (GPS). The soil surveyor is responsible to collect the information at the site or point on field cards. Consequently, each site is assigned an exclusive numeric identification; a key for the information loading into the database for having an irrigated agriculture. Contrary to this, another tool used for spatial information management system is the use of remote sensing system for management of crops through the use of satellites to monitor, assess via using the Sentinel-2 A + B constellation features that are more technical to generate information as well as supporting software both in the cumulative way are a meaningful technique of improving the monitoring in an agricultural context. Thus, the amalgamation of field data together with remote sensing technique might

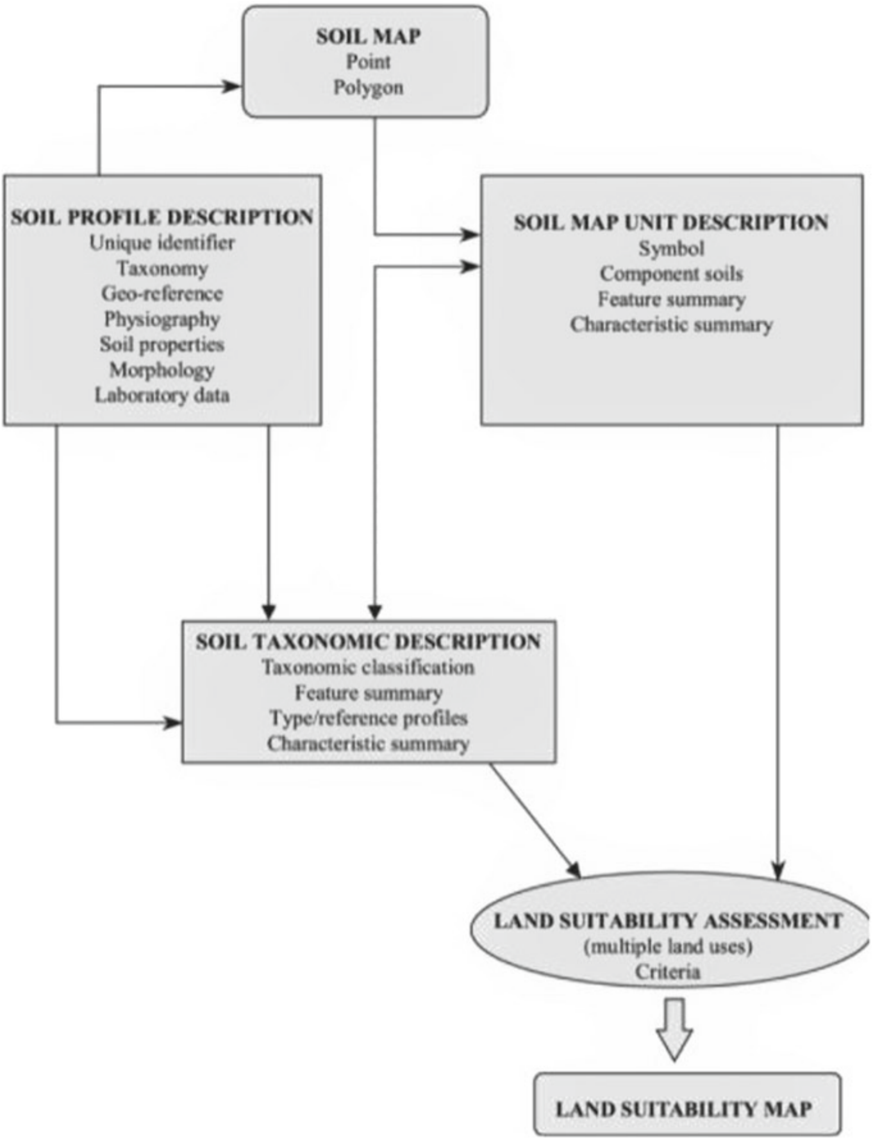

Fig. 6 Linkages between elements of soil information system (Roy & Grealish, 2004)

still be needed for effective functioning which in turn help in the improvement of the agricultural product in the form of crops (Segarra et al., 2020).

Correspondingly, the integration of spatial information systems can help to assess intensification of the system, security of the food nutrition, and reduction of poverty reliant on the current resources. Three basic options can be used for preserving the agricultural context such as firstly, assessing the operations head at farm levels like soil, changes in the weather, crop-related diseases, and availability of inputs in the form of information concerning farm. Besides, the second aspect is to spare the system in the direction of appropriate usage of the land to diversify the production scheme. Thirdly, the timely availability of data can help in establishing an organization to secure the food flow sustainability from the producer's side to the consumer side to gain benefits (Amejo et al., 2019).

6 The Perspective of Sustainable Development and Spatial Information Management System for Healthcare Sector

Besides, seeing the healthcare aspect, due to Covid 19, the situation faced by the healthcare segment is quite difficult for human resources as well as private and public sector hospitals to coordinate effectually with emphasis to deliver quality services for the sick people. On the other side, due to the economic downturn, the workers are paid poorly along with that some employees have faced layoffs which leads to affect the admittance towards safety nets related to social security. Covid 19 is not ended yet, still, there is the probability of occurrence of another pandemic in the future as well (Rajabifard et al., 2021).

Subsequently, the situation of Covid 19 got worsened in developing countries due to the scarcity of medical protection devices as well as an increase in population (Zhou et al., 2020). Accordingly, keeping the context of Covid disease, the spatial management system can be mapped in the form of analysis at spatiotemporal, health as well as social geography via keeping the environmental aspect through proper mining of data and planning based on the web to facilitate the smooth functioning. This can lead to help in making decisions, planning, and prompt actions through mapping and tracking of scientific and political replies through using spatial and temporal trends (Franch-Pardo et al., 2020). To map and plan for effective healthcare services information is needed on time. Therefore, the congregation of data and necessary information about the provision of primary healthcare services are needed for planning as well as monitoring the changes that occur after the execution of decisions taken based on the collected information (Ramzi & El-Bedawi, 2019).

So, the use of spatial management tools like GIS can help in solving issues linked to public health as well as better consider health complications in diverse geographic zones. Thus, the usage of numerous technology execution for management of information and software ought to help the health experts on the way to work effectively (Fradelos et al., 2014). Hence, for the organization and management, it would be easier and more efficient in the case of proper synchronization of services or facilities provided to sick people (Taravat, 2009). The basic feature that is seen as a central one for the health system to provide the preventive as well as curative services by a structured way to increase the provision towards availing the services like management of older adults using GPS (Ehn et al., 2021). However, access to quality healthcare services refers to the availability of the needed products and services geographically related to the data available for the population. Thus, GIS—spatial information tool can substantially allow a more refined form of metrics for the health access based on the data workable to deliver services to the population (Maina et al., 2019).

The use of advanced technologies can help to manage healthcare services at all levels including primary healthcare. Considering the traditional methods, they are not better able to manage all the aspects of healthcare systems from planning to the delivery of needed services by sick people. Therefore, the need emerges for the use of innovative technology like spatial information systems and its tools such as remote sensing and GIS. These tools do not help in planning, assessing the supply and demand for the material, products like pharmaceutical and other related diagnostics tools and equipment are together with managing the healthcare facilities (Ramzi & El-Bedawi, 2019). Therefore, there is a strong need to build a system of coordination among both levels including local as well as central government to work on sharing, storage as well as retrieval of information using the spatial information system and other digital innovations adoption to have a better future not only for human resources but also for organizations and sick people by focusing on the proper coordination of information.

Figure 7 shows the link between the spatial information management system and its tools (geographic information system (GIS), remote sensing, and Global Positioning System (GPS) and sustainable development goals (Good Health and Wellbeing, Responsible consumption and production as well as Decent Work and Economic Growth) with specific consideration to the three important sectors including health, agriculture and organizations that play a crucial role in the attainment of sustainable development goals. The use of spatial information management tools usage in different sectors and segment depends on the requirement of that particular segment: for example, in the agriculture sector most important is to manage the soil, land, and use of pesticides to control the disease related to crops that eventually affect the yields. Likewise, health and organizations—can better able to secure their better position by utilizing the RS, GIS, and GPS for the effective and efficient performance of individuals and organizations as a whole.

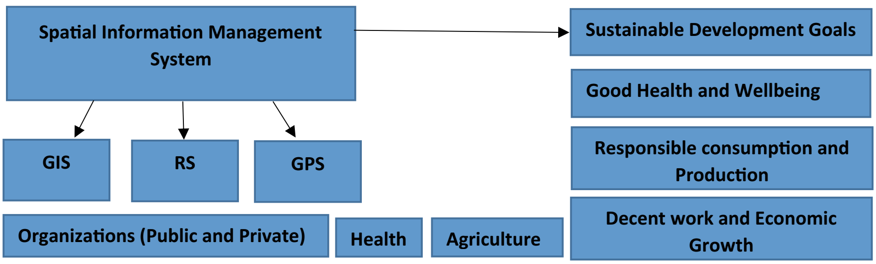

Fig. 7 Linkages between the spatial information management system and its tools with sustainable development goals with specific consideration to the three important sectors including health, agriculture, and organizations

7 Proposed Approach for the Execution of Spatial Data and Sustainable Development Goals Achievement

A practical approach is proposed for the use of spatial tools to progress the practical procedures for the attainment of sustainable development goals.

Following are the steps of the practical approach for policymakers and public administrators:

Step 1: To determine the scope as well as a source for the acquisition and storage of data.

Step 2: Identify the determinants regarding social, environmental, organizational, and economic aspects.

Step 3: Define the directions (For instance, in our chapter we have focused on organization, agricultural, and health aspects).

Step 4: Examine and select the spatial tools including geographic information system (GIS), remote sensing, and Global Positioning System (GPS) for coordination of information in different areas as per the need.

Step 4: Examine and select the spatial tools including geographic information system (GIS), remote sensing, and Global Positioning System (GPS) for coordination of information in different areas as per the need.

8 Summary

The use of spatial information systems is seen as an important aspect in a new normal environment. When seeing the new normal environment, it has now become important for all to search out new ways of accomplishing the sustainable development goals such as zero hunger through focusing on the agricultural aspect where good health and wellbeing through focusing on healthcare aspect and decent work by focusing on the development on the public and private organizations. Henceforth, this can be possible with the prompt focus on organizations, the agro sphere, and the healthcare setup through the effectual execution of spatial information management systems.

This point is emphasized through the devastating effect of Covid 19 in terms of no one being protected until everyone is protected. From the social, health, and economic viewpoint this virus catastrophe affected everyone badly. So, this virus is not ended, thus there is a need to use the technological aspect to coordinate each facet with data and information to navigate from the challenges effectively in the direction of building a community that is resilient to bring positive outcomes.

From the viewpoint of public administrations areas, spatial information systems from a sustainable perspective play a crucial role in the management of data in the administration of land, natural resources, marine, defense, communication, transportation, and availability of services to improve the business outcomes as well as economic development by making timely decisions through the utilization of information via spatial data.

Lastly, it is significant to have a deliberate potential toward repurposing and/or adapting the current environment with better access to innovations such as technological use for the betterment of the organization, agro sphere, and healthcare setup which in turn help to attain the sustainable goals in terms of better employment, wellbeing and equitable health services to all to recover sooner through structuring the capital and enhanced pliability when dealing with upcoming pandemics.

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Case Study-Power Sector Adjusting to New Normal Global Environment

Thomas George and Rajan Pothiyadath

Abstract Electricity being the key to growth in any sector, whether it is Industry, Agriculture, Commerce, Research & Development, service sector etc., and its availability abundantly ensures the required contribution to the overall development of the country. Power being a volatile commodity, the production of electricity would be based on real time demand of power. The usage of electrical energy being continuous nature without any interruption, the service is classified as essential & 24X7. This makes the Power industry complex & different from other industries and considered to be most essential. The skewed generation of electricity demands fully redundant Transmission network so as to have fully reliable power round the clock. Hence Generation, Transmission and Distribution of Electricity cannot be under lockdown at any point of time. COVID-19 pandemic again worsened the situation as the organizations in power sector are human resource intensive and the productivity of HR is curtailed due to the various restrictions imposed during the pandemic period. Kerala State Electricity Board Ltd. (KSEBL) the sole utility engaged in the Production, Transmission and Distribution of Power in the state of Kerala. Thus, in general the entire organizations in power sector have taken a new normal strategy and able to survive the Pandemic without affecting the service to the public at large. Union Government has declared funding support to various state Government based on some performance Indices calculated on specific focus areas in various sectors. In power sector Government proposed to monitor three areas like Reduction in Revenue Gap, Direct Benefit Scheme for the subsidy extended to farmers and Implementation of smart and prepaid metering. Thus, due diligence taken by the Government and the utility management, duly resonated by all stakeholders created the success story of managing the crisis contributed by COVID-19 pandemic.

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1 Background

Electricity being the key to growth in any sector, whether it is Industry, Agriculture, Commerce, Research & Development, service sector etc., and its availability abundantly ensures the required contribution to the overall development of the country. The per capita consumption of electricity is recognized as an index of advancement of the country and standard of living of the people (Shahi, 2005). The per capita consumption is around 1000 units in India while in developed countries it is more than 3000 units. The per capita consumption in Kerala is still lower than the national average, which is nearly 700 units (https://powermin.gov.in/).

The reports of World Energy Council (WEC) states that the energy sector has to depend on conventional fuel based power generation also, even with the addition of Non conventional energy sources in large quantum in forthcoming decades. While considering the growth in GDP of various countries and development indexes projected the world energy demand is expected to raise up to 35,000 Trillion Units from the availability of energy of around 22,000 Trillion Units. The above assessment considers the innovations that may take place for enhancing the efficiency of the existing power plants and increasing capacity of existing transmission lines also. In next three to four decades 40–70% of the investment in power sector would be in the renewable energy sector and by the year 2050 the total production from Solar is expected to exceed the production from fossil fuels as per a report of WEC.

Power being a volatile commodity, the production of electricity would be based on real time demand of power. The usage of electrical energy being continuous nature without any interruption, the service is classified as essential & 24X7. This makes the Power industry complex & different from other industries and considered to be most essential. The skewed generation of electricity demands fully redundant Transmission network so as to have fully reliable power round the clock. Hence Generation, Transmission and Distribution of Electricity cannot be under lockdown at any point of time.

The Power utilities in India are mostly working as public sector except few. The Standards of Performance (SOP) stipulated by the respective regulatory commission are met only by a few of them. The inherent lethargy and inertia attached to the public sector is always had an impact on the performance of the organizations. Albeit the utilities need to perform to the expectations of the customer 24X7, it may not be possible to meet the same due to various issues and mostly those lapses are not duly monitored by authorities at the right time.

The Kerala State Electricity Board Limited is the successor entity of the erstwhile Kerala State Electricity Board which was constituted by the Government of Kerala, as per order no. EL1-6475/56/PW dated 7–3–1957 of the Kerala State Government, under the Electricity (Supply) Act, 1948 for carrying out the business of Generation, Transmission and Distribution of electricity in the state of Kerala. As per Sect. 172 (a) of the Electricity Act 2003 (Indian Electricity Act 2003) and as mutually decided by the Government of India and Government of Kerala, KSEB had continued as Transmission utility and Distribution licensee till 24–09–2008. In exercise of powers

Table 1 The Consumer Base of the year 2020–21. (*Source* (https://www.kseb.in/) KSEBL website]

Regions	Total Consumers (Nos)					
	Single Phase	Three Phase	Total Low Tension customers	High Tension Customers	Street Light	Total
South	3,221,799	276,052	3,497,851	1542	40,416	3,539,809
Central	3,427,798	434,695	3,862,493	2459	22,538	3,887,490
North	3,398,643	234,204	3,632,847	1067	6050	3,639,964
North Malabar	1,652,748	126,760	1,779,508	532	5537	1,785,577
Total	11,700,988	1,071,711	12,772,699	5600	74,541	12,852,840

conferred under sub-Sects. (1), (2), (5), (6) and (7) of Sect. 131 of the Electricity Act, 2003, State Government vide the notification G.O (Ms)0.37/2008/PD dated 25 September 2008 vested all functions, properties, interests, rights, obligations and liabilities of KSEB with the State Government till it is re-vested the same in a corporate entity (https://www.kseb.in/).

COVID-19 pandemic again worsened the situation as the organizations in power sector are human resource intensive and the productivity of HR is curtailed due to the various restrictions imposed during the pandemic period. Kerala State Electricity Board Ltd. (KSEBL) the sole utility engaged in the Production, Transmission and Distribution of Power in the state of Kerala having 38000Sq.kM area and bound to serve a consumer base of 12.85 Million (https://www.kseb.in/) round the clock is facing immense issues in connection to the COVID Pandemic. In spite the processes and service responses are bit slow, KSEBL was managing somehow with regard to their Service quality and Speed of Service except during the Nipah virus/Covid-19 pandemic, floods, cyclone etc. (Table 1 and Figs. 1 and 2).

2 Effect of Pandemic on Utility functions and New Normal Strategies

Every organization needs to have a disaster management strategy and the resilience against the threat of any disaster would be planned and prepared to mitigate the risks associated. But the COVID-19 pandemic related issues and its mitigations were not planned and ever experienced before. Hence the behaviour of the pandemic and its effect on the organization's preparedness to be learned and to be incorporated in the disaster management strategies of the organization.

But the organization has set up a special COVID cell at HQ vide order No. 587 of 23.3.2020, consisting of experience people from all functional areas to formulate the strategies related to the business functions in adherence of the State Government

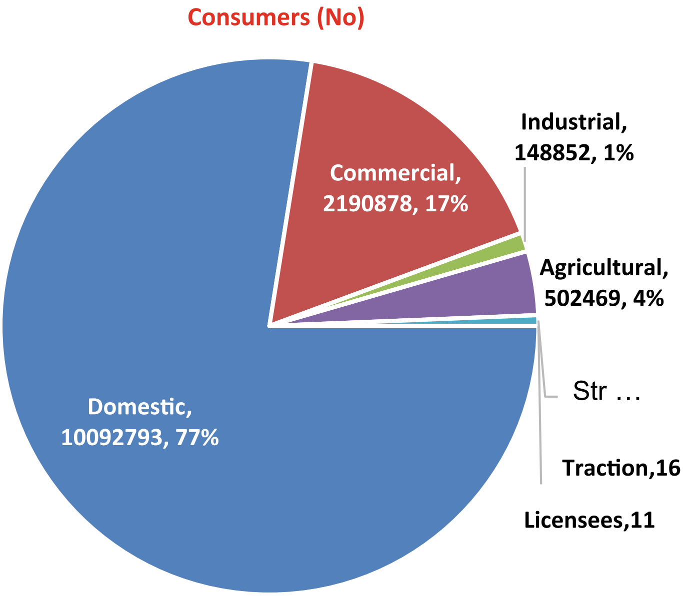


Fig. 1 Consumer profile of KSEBL (*Source* (https://www.kseb.in/) website of KSEBL)

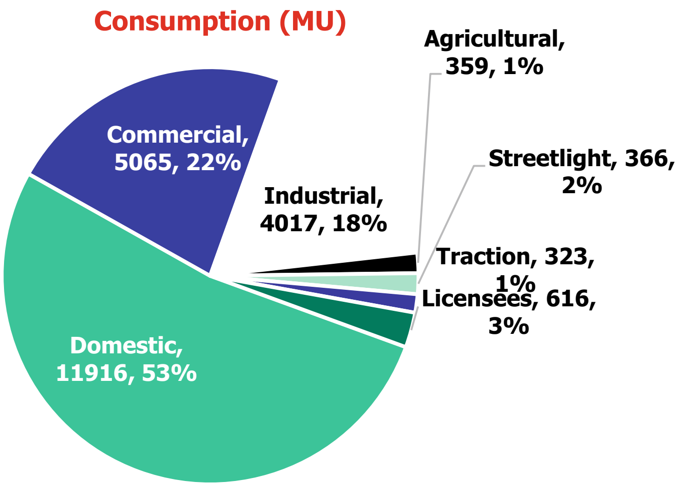


Fig. 2 Consumption pattern of KSEBL (*Source* (https://www.kseb.in/) website of KSEBL)

protocols and it will be interaction with nodal officers in each district to keep in control of the pandemic issues and reporting to Ministry of Health on real time.

Following are few new normal strategies adopted by the organization:

1. **Service@doorsteps**

Prior to the pandemic affected the public at large, the services to the customer like applying for new service, meter change, Tariff change etc. were done only when customer approaches the office and complete the formalities in person. A pilot study of the service @door steps of the customer is initiated at Palakkad on a trial basis and at a later stage across the state. This process change has become very useful for the public and for the organization to render the services in time.

A single telephone call to the office by the customer, the necessary staff will be sent as soon as possible (preferably within 2–12 h according to the type of service) to rectify the defect/to render the service. The speed of service obtained definitely may have an impact on revenue by way additional sale or reduction in expenses of the organization, but the greatest advantage is the increased customer satisfaction (Fig. 3).

2. **Formation of Outcenters**

KSEBL is having around 800 offices in distribution of electricity across Kerala and many of the sections operates for a geographic area of 50–100 SqkM. During the COVID period travelling this long distance was not advisable and the idea of having outstation temporary offices at various locations with minimum staff are opened. These staff members will stay in this locality and attend to the complaints informed over telephone to this crew. This crew will not be allowed to mix with the other crew as they are continuously engaged in this area only. Since the temporary offices are provided by the individuals or local body, there would be no extra expenditure to this effect. Thus, keeping the required service to the customers as per the standards of performance regulations stipulated by Kerala State Electricity Regulatory Commission (KSERC) without much increase in expenses during this covid pandemic was a successful model and hence even after the COVID pandemic, organization would be thinking of such new normal system for the sections having large geographic jurisdiction.

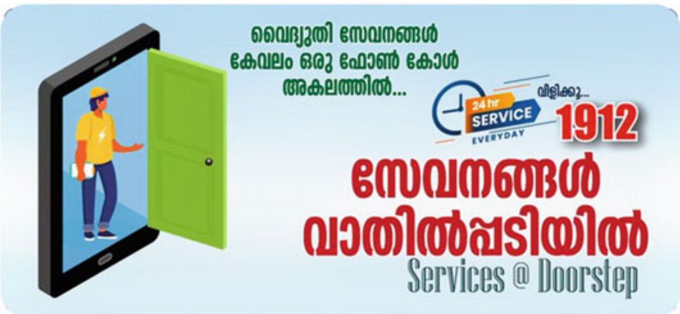


Fig. 3 The Service @ Doorsteps the concept emerged during COVID (https://www.kseb.in/)

3. **Meetings on Virtual Platforms**

Since few years the meetings on virtual platform (Video Conference) has replaced conventional meetings, but not in big way. But the COVID has opened to new thinking and methodologies for communication and one of its kind the Virtual Conferences (VC). Ever in the history even the Legislature and Judiciary forums has started conducting their businesses virtually.

KSEBL has been using VC facility in limited ways using their internal communication network and few leased lines. But after the start of the Pandemic KSEBL has started using the various virtual platforms like Google, Zoom, Microsoft etc. Even lot of start ups in the state also came up with dedicated software for virtual meets.

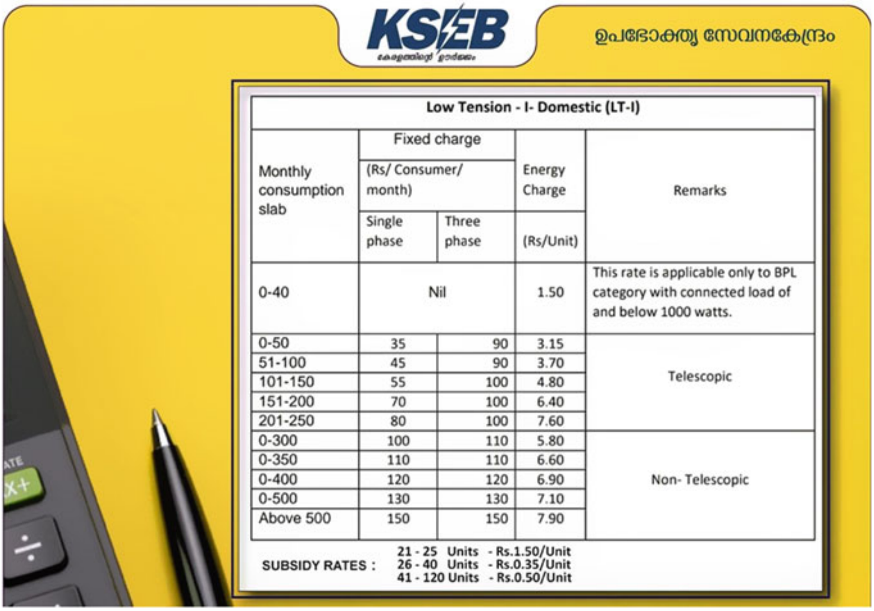
One greatest advantage to KSEBL is the faster decision-making process, especially in power planning and procurement, along with lot of savings in resources of the organization. It is sure that this vital change will stay forever and the personal meetings would be minimal in future to conduct a business.

KSEBL also partnered with Govt. of Kerala to implement K-FON (https://kfon.kerala.gov.in/) the optical fiber network across the state of Kerala using the right of way of Power Transmission and Distribution lines which will pave the impetus for a robust and high-speed data connectivity across state of Kerala including the rural households to which the stable internet connectivity is in their dreams. This has taken a fast-track mode as the data communication speed has been felt critical and significant during covid pandemic. Figure 4 is the approved scheme for the same.

4. **No disconnection and No delay penalty**

Usually, 14 days are given to the consumer for payment after generating the bill. But during COVID season meter readers were unable to go for reading and the billings

Fig. 4 The concept of K-FON the KSWAN over the Power lines across state (https://kfon.kerala.gov.in/)



Low Tension - I- Domestic (LT-I)				
Monthly consumption slab	Fixed charge (Rs/ Consumer/ month) Single phase	Three phase	Energy Charge (Rs/Unit)	Remarks
0-40	Nil		1.50	This rate is applicable only to BPL category with connected load of and below 1000 watts.
0-50	35	90	3.15	Telescopic
51-100	45	90	3.70	
101-150	55	100	4.80	
151-200	70	100	6.40	
201-250	80	100	7.60	
0-300	100	110	5.80	Non- Telescopic
0-350	110	110	6.60	
0-400	120	120	6.90	
0-500	130	130	7.10	
Above 500	150	150	7.90	

SUBSIDY RATES : 21 - 25 Units - Rs.1.50/Unit; 26 - 40 Units - Rs.0.35/Unit; 41 - 120 Units - Rs.0.50/Unit

Fig. 5 The Tariff applicable to domestic consumers of KSEBL (https://www.kseb.in/)

are delayed months together. Therefore, the pattern of billing and the intervals are changed. Total confusion aroused among consumers initially which created some bad name for the organization until it is clarified. The media also taken advantage of these issues and tried to put oil in to the fire (Fig. 5).

Hence Government has decided to allow few sops viz: more time for bill payment and disconnections dates are extended without penalty. Also fixed charges for unused or lockdown period is exempted from bills especially for commercial and industrial consumers. Some discounts are also offered to domestic consumers as domestic consumption has gone up as the people stayed back at home due to lock down. Thus, the consumers will be at ease of paying Electricity bills with some relief on increased domestic consumption. The interest on delayed payment is also avoided hardship to the consumer. The support from Government also was appreciable for avoiding the liquidity crunch of the organization.

An LT Consumer can remit electricity charges in any of the following manner (Fig. 6)

- Pay online using Net banking, Credit/Debit cards.
- Using KSEB mobile app
- Using Bharat Bill Payment System web site.
- Using Bharat Bill Payment system enabled apps/web sites like Paytm, Phonepe, Google Pay, Mobikwik, Payu, Amazon pay etc.
- By cash at the cash counter in any Electrical Section Office/collection centre.

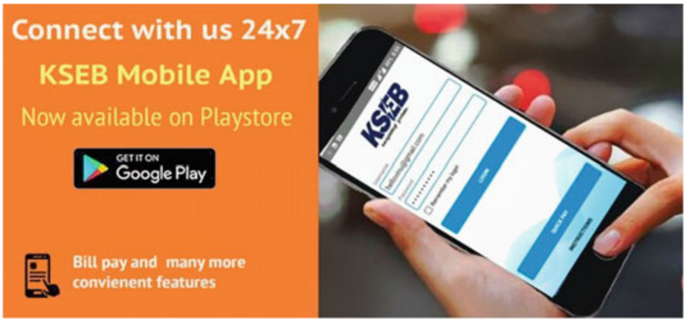


Fig. 6 Mobile App facilitating the bill payments (https://www.kseb.in/)

- By crossed local cheque or Demand Draft drawn in favour of the Assistant Engineer and sent by post or presented in person.
- By MO payable to the Assistant Engineer.
- In FRIENDS collection centres/Akshaya e-pay counters where this facility is available (payments accepted in these centres only up to due date given in invoice).

HT/EHT consumer can remit energy charges in the following manner

- Pay online using Net banking, Credit/Debit cards. Click here to visit our HT/EHT online payment site
- Demand Draft payable at Thiruvananthapuram drawn in favour of Special Officer (Revenue), KSEB, Thiruvananthapuram 695 004.
- By transfer of funds to the non-operative collection account of Special Officer (Revenue), SBT, KSEB Administrative Complex Branch, Pattom, Thiruvananthapuram 695 004.
- By transfer of funds to the non-operative collection account with M/s HDFC.

5. **Online services more active**

KSEBL has been providing facility to pay the electricity charges online, but all other payments and services were not fully online. Now the COVID has paved the way for providing almost all services online including meter reading by consumers themselves (Fig. 7).

Large number of services viz: new connection application, Tariff change, Ownership change, Load change, Voltage change, payments related to all services and electricity charges are fully available on online portal of KSEBL and accessible even through mobile apps also. Hence App based online business has become common now a days and no doubt that the pandemic has given impetus for the same.

6. **Bookings for visiting if required**

New e-Samayam mobile Application developed internally is used by the consumers and public to schedule their visit to meet concerned officers which saves the time and the rush is avoided in the offices especially during this pandemic. Thus, Covid

Fig. 7 Online Toll-free number for providing all kinds of 24X7 service to Customers (*Source* (https://www.kseb.in/) website of KSEBL)

pandemic has led the way to start new normal culture, but it may even would be a good option for the public to come to office after taking due appointments to save time and resources of both, rather than coming to office and waiting for long time.

7. **Use of Social medias for communication**

Almost all official and semi-official communications, data transfer have been done earlier through post, where as the social media communications were rarely used and not widely supported earlier. But the COVID-19 pandemic has given a drastic turn to this attitude by promoting the electronic media communication at par with conventional communication mode. This led to a real time communication and faster decision making rather than official communication duly signed reaches the concerned. There are specific purpose groups and which even take up technical discussions in the groups. This is one way of avoiding physical contacts in addition to the reduction in consumption of resources of the organization.

8. **Working using PPE (Personal Protective Equipment) along with Mask**

Accidents were common in the electrical installations and one of the reasons was non usage of PPE kits for the safety while working. The Covid has definitely brought in a new work culture of using face mask, sanitization, safe distance etc. This created general awareness among workers that usage of COVID-19 related PPE kits. Thus the safety culture in the organization has improved and hence the use of work safety related PPEs has become normal, which are essential for safe working and safety of an individual and public.

9. **Meter reading to go for Automatic and Pre paid**

The utility is taking meter readings monthly and bimonthly from the energy meter placed in consumer premises and billing is carried out accordingly. But during Covid it was not possible for the meter readers to visit the premises and hence the readings were suspended for about 3 months. But this created chaos and suspicion among the customers due to the billing and Tariff related issues. Now the Government and Utilities are thinking of bringing the Automatic Meter Reading and Prepaid metering to reduce the manual intervention in meter reading and billing. Thus, the new normal methodology will reduce the cost of utility in meter reading, billing and collection and also by observing the actual amount remaining in the meter, the consumers can reduce the consumption to reduce the cost of electricity.

The abstract from the Board order deciding to proceed with implementation of pre-paid metering is reproduced below.

> Having considered the matter in detail, the Full Time Directors in the meeting held on 01..1,O.2021,: 1 Resolved to accord sanction to propose the implementation of Smart Meters working in prepayment mode as proposed above (as mandated by Government of India) in various phases along with implementation of standardized billing modules, data management, data analytics, other support activities etc., for submission to PFC/Ministry of Power, Government of India through Government of Kerala so as to avail funds earmarked towards power distribution sector reforms under Revamped Distribution Sector Scheme (RDSS). Also resolved to forward an interim reply regarding implementation of Smart Meters working in prepayment mode, as proposed above in various phases, to Secretary, Power in response to the letter dated 20.07.2021. Further resolved that the schemes shall be proposed for submission to PFC/Ministry of Power, Government of India through Government of Kerala under "DBFOOT mode of implementation" as proposed in SBD (Standard Bidding Document) published by MoP for identifying an "AMl Service Provider". Orders are issued accordingly.
> By Order of the Full Time Directors

10. **Keeping social distance**

Pre Covid era the social gatherings and physical meetings were very common in the organization. But later after the insurgence of COVID the total culture in the organization has changed and everyone started accepting the virtual mode of meetings. It is generally commented that effectiveness of the meetings is less in virtual mode compared to physical mode. But the authors are of the opinion that except in specific complex issues, for all the routine meetings can be effectively conducted on line and the organization can save money and other resources.

11. **Work from home & 50% staff only working**

The employees were of the mindset that, the work can only be done when you are at office and many times people on leave will not be giving any attention to their job. But this is totally changed and most of the works can be planned and executed sitting at home. Only thing is that the reference files and data required may have to be collected on line before starting working on the file. It was possible to use Google drive or e-mails to collect all such information required for improving the effectiveness of the employees working from home. Initially the idea of working from home was not proposed by Management, later on allowed 50% working from home, where as the other 50% will be attending office. Any support needed for the people working from home can be done by the people available in office (Table 2).

12. **Shift Rearrangement-No mingling**

State Load Dispatch Center (SLDC) (https://sldckerala.com/) is the nodal agency responsible for the Supervisory control of efficient and economic dispatch of power across the state and hence the 24X7 operation cannot be disrupted in any manner. Hence during COVID the shift crew is divided in to two teams and both the teams are allowed to operate in separate control rooms by setting up a new temporary control room for this purpose. In case of exigencies the sub LDC at HO is also trained to

Table 2 Total number of officers and staff working in KSEBL (https://www.kseb.in/)

	Working strength			
	Officers	Work men	Deputation	PTC
Generation	664	861	0	26
Transmission	1249	1864	0	23
Distribution	2431	23,591	1	206
Corporate Office	559	719	1	1
Total	4903	27,035	2	256

take up the operation whenever required. Also, the recently retired people having experience in operation are kept on alert to substitute any team going in quarantine.

Similar arrangements are made for the operation of substations, but the crews are given three days and the next crew for next three days and so on. The trained people are kept on reserve for operating crews in all critical stations.

3 Conclusion

Thus, in general the entire organizations in power sector have taken a new normal strategy and able to survive the Pandemic without affecting the service to the public at large. Government of India, as part of their campaign called "Atma-Nirbhar Bharath" has identified the various sectors to be helped further to recover from their damages and business loss due to COVID-19 pandemic and Union Government has declared funding support to various state Government based on some performance Indices calculated on specific focus areas in various sectors. In power sector Government proposed to monitor three areas like Reduction in Revenue Gap, Direct Benefit Scheme for the subsidy extended to farmers and Implementation of smart and prepaid metering. Thus, due diligence taken by the Government and the utility management, duly resonated by all stakeholders created the success story of managing the crisis contributed by COVID-19 pandemic.

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“Philippine Local Government Leadership Styles, Business Relations, Influences and Issues in a New Normal Environment”

Jennifer Operio

Learning Outcomes:

After studying this chapter, you should be able to:

1. Understand the country’s local government leadership styles during the pandemic crisis.
2. Identify and discuss contemporary issues in the Philippine local government.
3. Justify the importance of leadership style amidst pandemic to local and foreign businesses on the road to the country’s economic recovery.

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1 Overview and Introduction

In many ways, a country’s government and corporate/business organizations are interconnected and interdependent. Businessmen and entrepreneurs are the driving factors behind today’s global economy. In a planned economy, or even a market economy, the government has complete control over the country’s corporate activity. The government must work to create a favourable climate for businesses in order to maintain stable and upward economic growth. Organizations must also respect government rules in order to conduct their companies properly and ensure a level playing field. Businesses’ primary purpose is to make a profit, whereas the government’s goal is to maintain economic stability and growth. Both of them are unique, but they are extremely intertwined. For this reason, the government and organizations or enterprises are always attempting to influence and persuade one another on a variety of issues. For the economy and the country’s well-being, a balanced partnership between the government and enterprises is essential (Fig. 1)..

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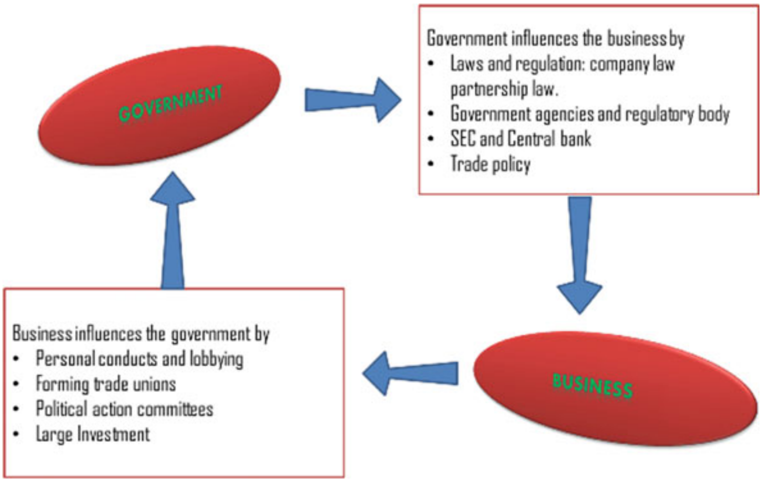

Fig. 1 Business and government relations. *Source* iedunote.com (https://www.iedunote.com/government-business-relationship)

The influence of business organizations on government organizations attempts to persuade the government to take actions that benefit business. Of course, a company must go through the proper channels in order to do so. However, we occasionally witness organizations attempting to cross the boundary. In any case, these are the most common tactics used by corporations to influence government policy. First, Personal Conduct and Lobbying. The same socioeconomic class includes corporate CEOs, political leaders, and government officials. Both parties develop a personal relationship as a result of this. Furthermore, organizations from the group formally convey their complaints to government entities. Followed by forming trade unions and the Chamber Of Commerce. Associations of business organizations having a shared interest, such as trade unions and chambers of commerce, exist. They work to identify shared issues among organizations, present reports, and hold talks with government agencies to discuss them. In the Philippines, the government under President Rodrigo Duterte's administration launched and enhanced the "Ambisyon Natin (Our Dream) 2040" which aims for every Filipino's aspiration to enjoy a "matatag, maginhawa at panatag na buhay" (stable, convenient and assured). At this time of Covid-19 global pandemic, the country as a whole has been benefitting from its reforms four to five years back. The pandemic also led urgency to crucial reform initiatives that encourages strategic industries to locate in the country, example of this is the CREATE (Corporate Recovery and Tax Incentives for Enterprise).

2 Adoption of IPSAS in NGAS

Accounting Information System (AIS) is widely used by organizations to automate and place technology in their business’ operations to gain competitive advantages (Ganyam and Ivungu, 2019). AIS is the integration of people, policies, procedures, and equipment to record, classify and summarize data and transforms it to usable information for decision making.

With the emergence of Information Technology (IT) giving birth to AIS, the business industry has become a battlefield or a war zone where the main concern is survival of the fittest. This is the reason why the impact of AIS on the financial status of a firm towards profitability has become a priority and a global concern. According to the findings of several studies, there is a significant impact of AIS on the profitability and overall financial status of a firm (Al-Dalaien & Dalayeen, 2018; Patel, 2015; Grande et al., 2011; Beg, 2018). This may be attributable to the positive impact of AIS in improving managerial decision making of an organization (Akanbi & Aruwaji, 2018; Kharuddin et al., 2010; Tuan Hazam & Mansor, 2017; Haleem, 2016) and enhancing financial statement preparation, inventory valuation, budgetary forecasting and management, and tax filing in accordance to General Accepted Accounting Principles (GAAP) (Akanbi & Arruwaji, 2018; Salehi et al., 2010; Al-Kasswna, 2012; Abdallah, 2013).

The Philippines gears towards the adoption of AIS in the local government as evidence by the emergence of New Government Accounting System (NGAS). The NGAS is a system employed by Local Government Units (LGUs) that organize financial information showing their overall accounting cycle and limiting each transaction to emerge from the different offices or departments of the LGUs. Pursuant with COA Circular No. 2001-005, prescribing NGAS in all LGUs including municipalities, the manual on the NGAS was made to ensure the proper accounting of all financial transactions of the LGUs.

Prescribed under COA Circular No. 2014-003, the adoption of the International Public Sector Accounting Standards (IPSAS) was mandated to every public sector entity in the Philippines including the municipalities adopting NGAS effective January 1, 2015. Its main objective is for the recognition, measurement, and presentation of requirements for financial reporting in the Philippine Government. The adoption of IPSAS changed the preparation and presentation of financial reports of the municipalities of the Philippines. Some of the changes in the adoption of IPSAS include the inclusion and removal of some accounts under the Revised Chart of Accounts (RCA), the shift from modified accrual basis of accounting to full accrual accounting, changes in the books of accounts maintained, changes to financial statement titles, reclassification of current and non-current financial accounts and others. These changes are perceived by the researcher to affect the financial status of the LGUs specifically the municipalities of the Philippines.

3 The Role of Philippine Government Special Agencies

There are a lot of roles for the government in business. The government tries to influence corporate activities through enacting laws and regulations, both directly and indirectly. Most of the time, the government has a direct influence on organizations by enacting regulations, laws, and rules that restrict what they may and cannot do. The government usually develops special agencies to monitor and supervise particular parts of economic activity in order to put legislation into effect. The Bangko Sentral ng Pilipinas (BSP), the Food and Drug Administration (FDA), the Department of Labor and Employment (DOLE), the Securities and Exchange Commission (SEC), and others are just a few examples. These agencies directly create, implement and monitor laws and their application in the organization. Governments sometimes take a backseat when it comes to influencing the operations of businesses. Implementing laws or regulations can also help, but they aren't always required. For instance, the government has been known to try to influence the policies of businesses by altering their tax rules. Companies who have an environmentally friendly waste management system in a manufacturing facility may be eligible for tax breaks from the government. Alternatively, tax breaks could be offered to businesses that locate their manufacturing operations in a less developed part of the country. As a result, other businesses are likely to follow suit. However, this legislation and its execution must be done to the highest possible standard.

In summary, in business, the government's duty involves safeguarding the consumer or customer. When a vendor fails to honor the guarantee, the buyer can take legal action. Similarly, if a product causes harm to a person, the vendor or producer may be held liable by the courts. It is a collective effort to have a healthy relationship between the government and business towards prosperous and strong economic ties. Government and business institutions in a country in many ways are interrelated and interdependent. In today's global economy, businessmen and entrepreneurs are the driving forces of the economy. The main goal of businesses is to make a profit and governments' goal is to ensure economic stability and growth. Both of them are different but very co-dependent. For this, the government and organizations or businesses always try to influence and persuade each other in many ways for various matters. A balanced relationship between the government and businesses is required for the welfare of the economy and the nation.

4 How Government Influences the Business Organizations

The government attempts to shape the business practices through both, directly and indirectly, implementing rules and regulations. The government most often directly influences organizations by establishing regulations, laws, and rules that dictate what organizations can and cannot do. To implement legislation, the government generally creates special agencies to monitor and control certain aspects of business activity.

5 How Business Organizations Influences the Government

Organizations try to force the government to act in ways that benefit the business activities. Of course, for that, an organization must go through legitimately. These are the common methods that business organizations use to influence government policies. Business tax is also one way how the organization interacts with the government. There are two kinds of business tax in the Philippines, namely:

A. Percentage Tax is a business tax imposed on persons or entities who sell or lease goods, properties or services in the course of trade or business whose gross annual sales or receipts do not exceed P550,000 and are not VAT-registered.
B. Value-Added Tax is a business tax imposed and collected from the seller in the course of trade or business on every sale of properties (real or personal) lease of goods or properties (real or personal) or vendors of services. It is an indirect tax, thus, it can be passed on to the buyer.

Government and businesses are drivers of the country's economic life. Government and business institutions in a country in many ways are interrelated and interdependent. In today's global economy, businessmen and entrepreneurs are the driving forces of the economy (iEduNote.com, 2020). Government's main goal is to make sure that economy grows and promote a suitable environment for business institutions. In order to achieve this goal, government enacts legislations to attract business institutions to invest in the country. In the case of the Philippines, it enacted Ease of Doing Business and Efficient Government Service Delivery Act of 2018 (Republic Act 11,032) which seeks to increase efficiency by reducing processing time, eliminating red tape, and curbing corrupt bureaucratic practices and aims to make it easier for businesses to start operating in the country (Narvas, 2020).

Another important legislation is the Corporate Recovery and Tax Incentives for Enterprises Act (CREATE Act), the Act's purpose is to grant tax relief for companies in financial need, provide transparent tax provisions, and further increase the competitiveness of the Philippines. Salient points of this Act are (1) reduction in the corporate income tax rate to 25% from 30%, (2) An additional two-year 'sunset' provision is granted to firms currently registered with the Philippine Investment Promotion Agencies and paying the five percent gross income earned (GIE) tax incentive, (3) attributed more powers to the President and the Fiscal Incentives Review Board (FIRB), to facilitate the issuance of incentives, and finally, (4) an extended net operating loss carryover (NOLCO) has been provided for registered projects or activities during their first three years from the start of business activities (Prodent, 2021).

Aside from legislations, the government also supports business with financing. In the case of the Philippines, in response to COVID-19 pandemic, the national government implemented a program called Small Business Wage Subsidy (SBWS) Program. Under the Small Business Wage Subsidy (SBWS) measure, the government, through the Social Security System (SSS), shall provide a wage subsidy of between 5,000 and 8,000 pesos (based on the regional minimum wage) per month per eligible employee. The national government is providing a wage subsidy for affected employees of small businesses to help mitigate the impact of the quarantine in Luzon and various local government units. This wage subsidy shall be given for up to two months so that affected small businesses are able to retain their employees during the quarantine period (Small Business Wage Subsidy Program, 2020).

The other end of the spectrum here are the business institutions. Businesses are put up to make profit. Businesses must have an understanding on how government affects its operations and profitability, it can formulate strategies for how best to interact with government. There are three general types of business responses to the public policy environment—reactive, interactive, and proactive (Gittell et al., 2012). Reactive responses involve responding to government policy after it happens. An interactive response involves engaging with government policymakers and actors (including the media) to try to influence public policy to serve the interests of the business. A proactive response approach entails acting to influence policies, anticipating changes in public policy, and trying to enhance competitive positioning by correctly anticipating changes in policy. For most businesses, a combination of the interactive and proactive approaches is the best approach (Gittell et al., 2012).

Businesses employ different tactics to influence the government. These include, but not limited to, (1) **Business Lobbying**. Lobbying refers to the attempts of interest groups to influence decisions made by the government, legislators or members of regulatory agencies (Ninua, 2012). (2) **Political Contributions**. Businesses also use campaign contributions to support their position and to try to influence public policies that can help them increase profits. Access to funds for lobbying and campaign contributions gives them a significant voice in the political system and on policies that can impact sustainable businesses, and (3) **Interest Group Participation**. Business response can include participation in interest group politics. Interest groups play a key role in all democratic systems of government. It is a group of individuals organized to seek public policy influence. Businesses will encounter interest groups that may support or conflict with their position on an issue (Gittell et al., 2012).

It must be emphasized that aside from making profit, businesses do promote economic growth, raising the quality and standards of living and generates employment of the country's citizen—which are the government's mail goals for its people. Governments and businesses should not be at odds with another rather they should work hand in hand to achieve their common goals. There should interdependence between the two. Also, limitations should be set and defined to prevent abuse of either party. The welfare of the citizenry should be paramount over any business and political interests.

6 Philippine Developmental Plan 2017–2022

The Philippine Development Plan (PDP) 2017–2022 reinforces the Philippine Competition Act (PCA) through strategies that aim to foster an environment that penalizes anti-competitive practices, facilitates entry of players, supports regulatory reforms, and improves trade policies to stimulate investments and innovation and boost competitiveness. As the country reels from the economic consequences of the COVID-19 pandemic, there is a need to refocus the government's strategies and interventions towards a healthy and resilient Philippines. These strategies and interventions that stimulate economic recovery and restore market efficiency to ensure a more resilient, inclusive, and competitive market is a sustainable plan for the future of the Philippines.

Philippines have a goal called *AmBisyon Natin 2040, which* represents the collective long-term vision and aspirations of the Filipino people for themselves and for the country in the next 25 years. It is important because it describes the kind of life that people want to live, and how the country will be by 2040. *AmBisyon Natin 2040* is a picture of the future, a set of life goals and goals for the country. It is different from a plan, which defines the strategies to achieve the goals. It is like a destination that answers the question **"Where do we want to be?"** A plan describes the way to get to the destination; ***AmBisyon Natin 2040*** is the vision that guides the future and is the anchor of the country's plans.

According to the Philippine Development Plan (PDP) 2017–2022, the country's first medium-term strategy based on this long-term objective. It aims to establish a more solid foundation for more inclusive growth, a trust-based and resilient society, and a globally competitive knowledge economy. The current Philippine Development Plan aims to empower the poor and underprivileged, promote governance transparency and accountability, and boost economic growth. The objective of this development plan is to help Filipinos achieve "matatag, maginhawa, at panatag na buhay". It recognizes past administrations' achievements, adopts best practices, and carefully evaluates the lessons learned from these experiences.

AmBisyon Natin 2040 symbolizes the Filipino people's collective long-term vision and ambitions for themselves and the country over the next 25 years. It describes the type of life people wish to live and the state of the country in 2040. The government has initially launched two significant efforts to allow and empower every Filipino to attain the Ambisyon: to "***Heal as One***" (Bayanihan1) and to "***Recover as One***" (Bayanihan2). These initiatives by the government provided funds to address the requirements of COVID-19 for tracing, testing, and treatment while assisting low-income families and returning overseas Filipinos who were economically displaced because of the quarantine restrictions. Some 17.6 million and 14 million low-income families received the first and second tranches of the Social Amelioration Program, respectively. In addition, sustained efforts to improve health system capacity, particularly in contact tracing, testing, and isolation protocols. Meanwhile, the Corporate Recovery Tax Incentives for Enterprises (CREATE) ushered in a more competitive tax and incentive regime for businesses—the corporate income tax rate was reduced (by 10% points for small businesses and 5% points for everyone else); the incentive structure was nuanced depending on the type of investment, location, and subject to agreed-upon performance criteria. The COVID-19 crisis has only strengthened the country's will to improve its social protection system in order to ensure Filipinos' resilience, health, and well-being. Social security programs made a significant contribution to the reduction of vulnerability and poverty throughout the first half of the

Plan period. Wider coverage and efficient social support were key factors in the improvements.

In summary, the government should be transparent, responsible, and effective institutions lead to improved public service delivery and increased public trust. In order to achieve a healthy and resilient Philippines, public service delivery is critical. Significant progress in the governance sector has been made in the first half of the Plan's execution, with the passing of various laws that partially improved the way the government provides services to the people. The government needs to accelerate the move to digital platforms for citizen involvement, service delivery, capacity building, and accountability mechanisms in light of the COVID-19 pandemic. In the end, Philippine development must protect and promote rights, both at home and abroad; improve everyone's participation in the government; and make it easier for everyone to contribute to our country's growth and reintegrate easily into Philippine society.

The policies and programs that support the plan are really the much-needed and long-awaited reforms that can truly provide a life changing society though some reforms were admittedly radical and were expected to result in short-term negative effects given initial trade-offs. These changes are the hopes of many Filipinos that someday everybody will have a far better life that we have today.

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Trends and Issues of Social Media Adoption by Public Administration in New Normal

Muhammad Mohsin Zahid, Ammara Nusrat, and Amna Kanwal

Abstract Public administration is going through rapid transformation due to external pressure of adapting to the New Normal in a response to COVID-19 pandemic. This transformation is supported by the usage and adoption of social media tools and techniques which have in a way supported this transformation. Alternatively, the adoption of social media has brought its own challenges and problems during the process. This chapter addresses the trends and issues of the social media adoption by the public administration. Chapter covers the challenges posed by the COVID-19 to the public administration and response to this phenomenon supported by the social media. Acceptance of the social media in the new normal, generally, and specifically by the public administrators is also discussed. Identified trends include but not limited to the new information dissemination patterns, engagement techniques, public sentiment analysis, emergence of "celebrity servants", localization of social media and emergency response integration. Whereas issues of infodemics, misinformation, disinformation and malinformation are discussed with suggestions to address these concerns.

Keywords Public administration · New normal · Social media adoption · COVID-19

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1 Evolution of Public Administration

Public administration is evolving through times, this evolution is partly due to the internal evolution of knowledge itself and majorly due to the response to the external public environment. Public administrators use new tools and techniques available to them to gain efficiency and effectiveness in their practices. Social media is such another development which has greatly altered the public administration dynamics. Every moment, the number of people using social media grows, and in recent times, the number of people who use popular social media platforms like Facebook, Twitter, and YouTube has exploded (Sobaci, 2016). These advancements focused on this platform can generate a ton of information in real-time for a large audience at a minimal cost, allowing for communication between government entities and public (Bonsón et al., 2015; Kavanaugh et al., 2012). So, social networking platforms can promote government transparency and can also improve delivery of government services and policymaking (Bonsón et al., 2012). According to Bertot et al. (2010), "Social networking sites show considerable potential to reform governance by enhancing transparency and its involvement among community members". Thus, public administration use the social media to create new channels for rapid dissemination of information, manage public image, improve openness, enhance engagement with the government, plan and provide government services to public (Criado & Martin, 2015; Sobaci, 2016). To analyze the true influence on government-to- citizen (G2C) connections, several academics have emphasized the necessity of focusing on what local bodies do on SM (Reddick & Norris, 2013).

Governments and citizens are increasingly using social media to capture and explain crises and take appropriate action (Panagiotopoulos et al., 2016). Moreover, social media platforms powered by interconnectivity enable users to find and exchange information. Hence, social media can improve citizens' abilities to understand current events and cooperatively solve problems. As a result, a cyclical, two-way communication mechanism is established.

Governments around the globe are attempting to harness its potential to revolutionize government operations, particularly in terms of enhancing citizen participation and networking (Picazo-Vela et al., 2016). In contrast to one-way e-government websites, social media functions as a continuous channel of communication between authorities and society (Hong, 2013; Zheng et al., 2016). Public may retrieve information, connect, engage, contribute, and collaborate with government agencies through social media. These organizations may bring the public sector agenda to social media platforms and deliver important information, which citizens prefer because they don't have to visit the government websites to receive that information (Bonsón et al., 2012).

Pakistan has witnessed a substantial increase in social media usage in recent years, with 35 million monthly active users in 2018 and 32 million monthly active Facebook users (Cochran, 2007). People in Pakistan are now using social media for social movements, protests, and holding officials accountable (Udanor et al., 2016).

Political leaders and government institutions in Pakistan have begun to use social media to disseminate information (Ali, 2013).

They primarily use social media to disseminate information, policies, ongoing initiatives, future possibilities, news, and other public notices. In Pakistan, despite uptake in numbers, official usage of social media is still in its infancy, and the government is gradually appreciating the significance of its role (Memon et al., 2015).

In the current pandemic of COVID-19, social media has become an essential avenue for crisis communication (Han, Wang, Zhang, & Wang, 2020; Picazo-Vela et al., 2016). During outbreaks, administrations used social media networks to publicly inform and educate common people about their policies (Chan et al., 2018). Public institutions are using numerous social networking platforms, such as Twitter, Instagram, Facebook and others, to accelerate efficient and comprehensive dialogue, based on their distinctive characteristics, accessibility, and usefulness, in this technological development journey (Guo et al., 2020).

2 Challenges Posed by COVID for Public Administration

The COVID-19 pandemicis still posing a severe challenge to the world's social, economic, and healthcare sectors. As of August, 2020, confirmed coronavirus cases had topped 22.7 million worldwide, with 794,274 deaths (Ittefaq et al., 2020). It is now one of the leading causes of death worldwide in the world (McCann & Schwartz, 2020). COVID-19 has had a negative impact on human existence, family life, and the rate of socio—economic development, most of which have led to irreversible losses in environmental sustainability (Zuo et al., 2018).

The COVID-19 epidemic has put a strain on every country's socio-economic and ecological indicators, raising questions about how countries may maintain their long-term viability and progress.

On February 26, 2020, the first incidence of COVID-19 in Pakistan was confirmed in Karachi, when a student arrived from Iran (Bolay et al., 2020). By March 2020, pandemic was spread to all provinces including Federal city Islamabad. People could get the up-to-date information and policy guidelines on COVID-19 from reliable sources on the web platforms, authenticated and representative accounts of health authorities on Twitter across the country, and from common health experts who provide insights and the most up-to-date information on COVID-19. Another good resource for up-to-date and reliable information on the worldwide pandemic has been the World Health Organization. As the pandemic advances, the public's information needs change on a regular basis. The public, for example, desired to know the truth about the pandemic and preventive actions connected to their personal safety in the early phases because of the virus's infectious and insidious character. The government's response to the epidemic and meeting residents' needs was aided by a social media outlet that supplied crucial and timely information. It aided not just the central government in monitoring local government activities, but also the local government in identifying people' needs in a timely and efficient way. Social media offer a new approach for government and citizens to connect and share information through interpersonal interaction, and it empowers people to take part in government decision-making activities. Off the advantages of social media and numerous initiatives by governmental bodies, individuals lack of involvement in using social media for e-government services remains a critical challenge (Alarabiat et al., 2018).

There have been strong arguments that social media has a negative impact on the social environment, despite that openness, participation, and information exchange are all enhanced by the media (Bertot et al., 2010; Bonsón et al., 2012). Several government entities are in the process of restructuring the use of social media to build awareness, but the concept of corporate transparency using, web 2.0-enabled dialogue is still in its early stage (Bonsón et al., 2012). During last several epidemics, it has been observed that social media websites has become a tool for obtaining information about diseases. First-hand knowledge of current events and the ability to share it with others social circles, relatives, and community members are all important sources of information (Jang & Baek, 2019). Social media serves as a platform for people to discuss their thoughts and feelings about the sickness in places where an infectious pandemic is spreading (Ofoghi et al., 2016). On the downside of interconnectivity and ease of sharing information is misinformation. Several theories about COVID-19 circulated on the internet on a regular basis globally. It was rumoured, this virus vaccine involves implanting a chip in a person's body in order to monitor and detect them, and Microsoft CEO Bill Gates initiated this project (Lee et al., 2020). Local People, particularly in rural regions, were propagating stories that the governments are receiving funds from WHO in exchange for a single COVID-19 positive dead corpse, as a result of which everyone would be declared COVID-19 positive if they went to any hospital.

3 Social Media Supporting the Changes in Public Administration

Use of social media (SM) has made its place vital in the modern age over the last decade, and public administration is also under transformation with this trend. The following basic features of social media are in action for public administration in this framework (Power, 2014). First, engagement: social media invites all key stakeholders to contribute and provide feedback. Second, transparency: Most social media platforms allow for voting, criticism, comments, and information dissemination. Acquiring and utilising content is rarely a problem. Third, dialogue: traditional media is about transmission, in which content is sent or distributed to an audience, but social media give power for conversation and are considered as two-way communication tools. Forth, community: social media enables communities to develop and improve communication about shared interests such as political problems or popular television programs. Fifth, connectivity: most social media platforms operate on their ability to connect people through linkages and the ability to integrate multiple platforms at once place. A rising proportion of health authorities and individuals are turning to social media channels to interact and share information. But, understanding of the type of content which is appealing is vital for increasing engagement (Bonsón & Bednárová, 2018; Bonsón et al., 2015). Some content styles may be more interesting than others. In order to maintain a continuous communication with public during a crisis, recognizing those types together will be crucial (Chen et al., 2020).

4 Acceptance of Social Media in the New Normal

The term "social media" is commonly used in reference to digital and cellular interaction, as well as "new types of media that include direct involvement", which give users a major role in "creating, exchanging, or just consuming user-generated material" (Lovari & Valentini, 2020; Mukherji, 2009). Web 2.0 is a digital framework that allows users to create, develop, improve, and share content and services (O'Reilly & Battelle, 2009). One of Web 2.0's most important elements is collective intelligence. Modern digital platforms allow geographically scattered individuals to form new connections that would not be possible with traditional media. The two- way, open nature of social media has also altered the interaction between authorities and society, enabling communication and collaboration while also increasing responsiveness and openness in governance (Bertot et al., 2010; Peixoto & Fox, 2016). People are qualified to collaborate with the administration on social networking sites, particularly in reporting current public service deficiencies in their area or town. Individuals can also keep track of the government's availability and responsibility by offering open, honest feedback on quality of service (Grimmelikhuijsen & Meijer, 2014).

Individuals can self-organize to undertake collective action using social media even if the government does not intervene directly (Dadashzadeh, 2010). Social media has had a significant impact not only on interpersonal relationships, but also on the atmosphere in which public policy is made. Social media provides a plethora of chances for government agencies, especially local governments, to make public policy, increase participation of civil society, involve stakeholders in policy and planning; increase in openness, more responsibility, fight corruption; co-production of government infrastructure, utilise public skills and experience to implement new solutions to issues (Ferro et al., 2013).

It is expected to observe that the appeal of social media has spread beyond the business realm to public administration and municipalities. With the tremendous growth of social media, it's no coincidence that government agencies are jumping on board and launching sites to connect with people. Moving toward a digital society and interacting with citizens is now widely regarded as a necessary component of political legitimacy (Schellong & Girrger, 2010). In the field of e-government, the utilization of mobile technology in conjunction with social media opens up intriguing possibilities. Additionally, social computing can fuel the next stage of e- government progress and involvement with strategy implementation, good administration, and reasonable expectations (Joseph, 2012).

The New Normal, as the post-COVID-emergence world has drastically changed the dynamics of personal, professional, commercial and public spheres. The process of changes and adoption of new technologies which were expected to take around a decade has been completed in merely two years now. The New Normal emerges with new challenges of uncertainty, emergency response, supply chain disruptions, food and medicine shortages, exploitation of resources leading towards social unrest. These all challenges exacerbated by the virus transfer speed and scope has lead the public to opt for sources of information which are updated on the real-time. Unlike traditional forms of media, social media networks allow for "many-to-many" connections (Bertot et al., 2010). Social media in such scenario becomes the go-to place for the news and information access due to elimination of the bureaucratic processing, editing and filter mechanism of established news outlets. Whereas, Twitter has already become the most commonly used platform for emergency situations where unfiltered public provided information is available in short forms on the real-time basis. Naturally, governmental entities adopted social media to quickly update and disseminate information regarding the general public's essential conditions, because now they can cut out the intermediaries like reporters in conversation transmission (Madden & Smith, 2010).

Social media is beginning to incorporate into local government communication techniques and direct contact public (Criado et al., 2013). Social media has also the ability to record shift in public emotion, beliefs, and attitudes, which is very crucial for managers to comprehend the value of social networking sites (Carter et al., 2014). This reverse knowledge about social sentiments and public emergency situations, assisted by artificial intelligence and pattern recognition algorithms, has empowered the governments to identify and eliminate the social and medical threats in a time never possible before. Massive social media experiments are more popular in terms of digitalization in domains such as political science, economics, and marketing (Aral et al., 2013). Political conduct, advertising, product pricing, dissemination of information and emotional reactions are all cases (Bakshy et al., 2012a, b; Bond et al., 2012).

Social media can be viewed of as a significant extension of Web 2.0 because it uses Web 2.0 technology to encourage user-generated content and to enable the sharing and dissemination of information through social networking and interactions (Boyd, 2008). Facebook, Twitter, LinkedIn, YouTube, Pinterest, Instagram, and Flickr are all social media platforms that allow users to create online communities, connect with others, and exchange information. users can remain connected and informed about COVID-19 by using social media. Social media satisfies people needs, like desire to obtain reputation and knowledge; as a result, it opens up new potential options for the media and other industries.

5 Acceptance of Social Media by Public Administrators

The use of social media in the government sector might be regarded a "fifth generation" of information and communication technology (ICTs) (Mergel, 2012). These innovations are revolutionary because of their ability to produce, organize, exchange, integrate, and provide knowledge through online networks, which are made up of interconnected individuals who share common values and goals (Bertot et al., 2010; Chun & Luna-Reyes, 2012; Meijer & Thaens, 2010).

Responsiveness, involvement, interaction, and collaboration are just a few of its distinctive characteristics and qualities (Bertot et al., 2010; Park et al. 2015; Zheng & Zheng, 2014). As a result, governments in industrialized nations are increasingly paying attention to social media, which have started to benefit here on collaborative digital world and designed explicit laws, strategies, and methods for its optimal use (Al-Aufi et al., 2017; Mossberger & Crawford, 2013). Use of social networking sites by public administrators in underdeveloped countries, on the other side, is still at an informational phase (Al-Aufi et al., 2017), meaning that authorities use social media networks mainly for news releases and latest updates, with little concern in cooperation, interaction, or dialogue with common people. In the public sector, digital networks refer to a set of internet-based tools that enable state institutions to communicate with people and other stakeholders utilizing the web 2.0 paradigm (Criado et al., 2013). These tools have been included into toolset in government administration, which is built on unidirectional technologies that regard individuals as passive information recipients. People have become content co-creators and senders because of social media platforms (Mergel, 2012). In reality, the usage of social media applications in government can be considered as an extension of public government's digitalization initiatives as a latest influx of the e-government era. Social media, on the other hand, is not like earlier e-government surges. Social media is more engaging than traditional e-government methods, like conventional webpages. Both public entities and civilians contribute to the content produced. Offline and e-government services cannot be substituted by social media sites as these are current communication tools (Mergel, 2013).

Social media also allows you to track down and communicate with influential members of your community (Kavanaugh et al., 2012). The primary motivation for public administration to adopt information and communication technology (ICT) is to reach a large number of individuals in a short time period and give high-quality information (Feldman et al., 2016). Twitter is one of the most frequently used (by governments) and researched social media channels (Oltmann & Proferes et al., 2020; Waters & Williams, 2011). According to Alam and Lucas (2011), Australian government agencies use Twitter to disseminate information about themselves and report on their actions.

Small (2012) discovered that the primary goals of Canadian government Twitter feeds are information and service delivery, despite the fact that Web 2.0 technologies provide governments with a variety of additional ways to communicate with citizens. According to Meijer & Torenvlied (2016), the majority of Dutch police Twitter communication is decentralized and utilized for external communication. In Pakistan, political parties and public administration have begun to use social media platforms to disseminate important information about policy matters in recent decade (Ali, 2013). During the pandemic of COVID-19, the heads of states made numerous appearances on social media platforms to address the community for many major announcements about COVID-19, demonstrating the importance of social media among public institutions for transmitting useful messages to a large group of audiences in order to tackle and minimize its impact in uncertain situations.

Following global trends summarise the adoption of the social media by the public administrators.

6 Trends of Adoption

6.1 Information Dissemination and Management on Social Media

Electronical portals such as social networks help the public engage with government entities by providing quick and easy access to timely and accurate information, leading to increased public trust (Al-Aufi et al., 2017). Social media is intended to act as an intermediary between public administration and public by allowing them immediate access to information and giving them a forum to express their thoughts, leads to improved impression of the government's trustworthiness (Rotchanakitumnuai, 2013). Social media has attracted attention in the political industry on account of its fast development and broad variety of features. Public' perceptions of public administration performance decrease dramatically once information is shared on social networking sites, according to this viewpoint. Liao and Chang (2007) discovered a substantial positive correlation between the administration's approach to the pandemic and citizens' impressions of administrative responsiveness. Social media's advantages for public administration are increase in operational efficiency, providing better public services in community, improving overall regulation processes, local governance reinforcing, efficient knowledge management and cooperation (Sobaci, 2016). The Chinese government effectively collaborated with a social media platform to not only create a dedicated channel to allow citizens to post information about the pandemic to accelerate the speed of relief but also mobilize citizens and non-profit organizations to support government response and recovery efforts. This suggests that social media can provide a venue for the government to not only tackle the information overload but also mitigate the friction among levels of governments.

The central governments have collaborated with social media platforms to build a dedicated channel and expand production to allow the public to share information about the COVID-19 outbreak. Social networks impact and form public administration's action and policies. This can be thought of as a type of electronic surveillance carried out by the central governments to address information issues. Local

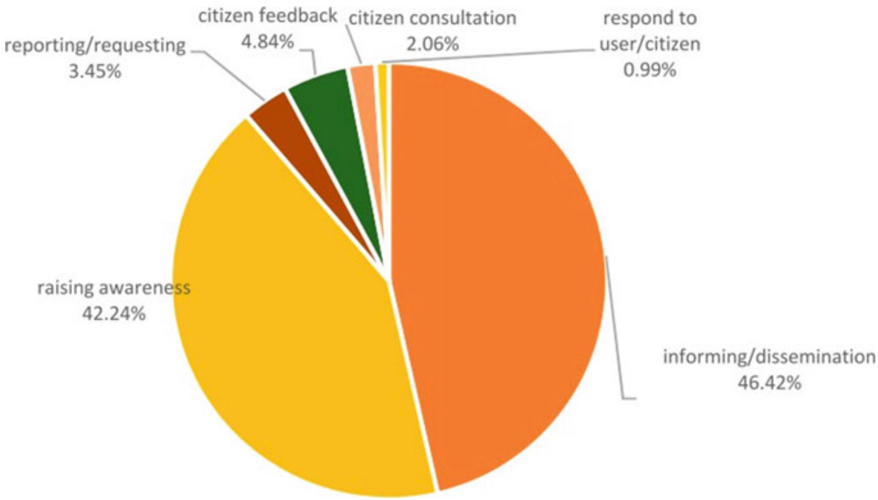

Fig. 1 Categories of interaction at a public administration Twitter account (Cho & Melisa, 2021)

governments work with the Weibo social media platform, which is funded by the Chinese government, to find out who needs what kind of help during the pandemic and to look for online criticism of the government. Observations suggest that social media does indeed operate as an effective medium to alleviate information asymmetry, as evidenced by how social media eventually influences the central government's responses or policies during the COVID-19 epidemic. Figure 1 indicates a typical public administration account at Twitter by Dinas Bina Marga dan Pengairan Kota Bandung (DBMP), an Indonesian local authority (Cho & Melisa, 2021). Moreover, World Health Organization (WHO) has recommended for the strategic and efficient use of social media platforms to distribute health information to non-specialists and the public in general, particularly on epidemics (Li et al., 2020a, b). In regard as disseminating information, people using social media platforms engage in discussions by expressing their respective viewpoints and sharing their personal views.

6.2 Using Social Media for the Public Awareness

People who are intrigued about the new normal may experience uncertainty, stress, and anxiety as a result of crucial circumstances. Misunderstandings may spread throughout communities prompting the significance of public education. Raising public awareness could be accomplished by using the internet, especially social networks, to reach out towards the public (Taleb et al., 2021). The understanding of administration internet web sites for awareness campaigns is significant since it assists in determining the impact of government preventative initiatives and policies, as well as determining the need for management (Allgaier and Svalastog, 2015). According to researchers, most of the underdeveloped countries face significant challenges in controlling the transmission of contagious diseases caused by lack of medical infrastructure and amenities (Kouri et al., 2017). Inadequacy of these countries' health-care systems, awareness level of contagious diseases results in behavior adjustments in the overall public, resulting in partial treatment. This partial treatment lessens the strain and financial cost on healthcare centers. Social networking sites are regarded useful methods for raising public awareness since they promote real-time transmission of information about the virus's actual situation and provide suitable recommendations to the public on how to avoid becoming sick. Furthermore, social networking sites have been demonstrated to be an important channel of information that allows for the development and sharing of information to people through the use of the internet (Laranjo et al., 2014). Studies have stated that information and opinions relevant to public health are exposed through informal use of social media platforms beyond the official healthcare institutions (Dubey et al., 2016). The latest results are considered useful and valuable for public health officials and institutions in comprehension who acquires the assistance, the influence of social media application campaigns, and the degree which keeps changing in public health and developmental results can be attributed to the intervention, as well as assessing how the propagated information is interpreted. The central priority of these measures is depicted by education and awareness that take advantage of digital channels' large scale, reach, and responsiveness to communicate quickly and effective manner (Al-Surimi e al., 2016).

Public—sector medical institutions and government units, as other sectors of the public service, are responsible for the supervision, preserving, and striving to improve residents' wellbeing while national healthcare institutions are responsible to participate in e-government systems. The widespread public use of social networks creates a primed path for their implementation in the healthcare profession. Social media sites can be used to develop and disseminate insight into a particular solution to treatment and prevention of problems, promoting healthy and successful plans and practices. Unlike traditional media efforts, which are occasionally launched, social media initiatives frequently succeed in converting ideas and insights on many health problems into daily constructive online debates (Quarterly, 2016). Aside from the rising number of data sets available, another immediate value with social media data is that it is extremely relevant and integrated. In perspective of epidemic durations and expanding advancements, social media platforms are a valuable medium of communication that can be utilised to raise public awareness of contagious diseases (Giustini et al., 2018; Freberg & Palenchar 2013). Social media sites play a significant role to promote healthy lifestyle to secure citizens life from epidemic diseases. Initiatives for outbreaks by social media can be useful in instilling positive attitudes and habits in the general public, such as washing hands and social distancing, which can help to slow the progression of the virus (Collinson et al., 2015).

6.3 Highlighting Public Administration Performance

Social media has become the one of the most effective tools for highlighting government performance. Any productive and helpful use of social media is encouraged by a public agency which helps in connecting with the community to seek feedback on a government decision, recommendations for improving service delivery, and handling and solving the problems.

Governments' digital adoption is giving rise in reasons for public administrators to communicate directly with common people in order to provide clarity and design more effective policy and service. Social media has helped governments crowd-source insights from common people and provide portals for policy conversation and debate, allowing them to overcome geographical and time constraints. Handling social media is a distinct skill set that is rarely combined with governance expertise, and it demands a truly innovative and up-to-date set of skills in order to boost potential. For many organisations, social media has become an essential tool for interacting with customers and service users. A large number of employees in government, business, and non-profit organisations are using social media for professional reasons, including direct interaction with clients and expanding participation of stakeholders (Kaplan & Haenlein, 2010; Manetti et al., 2017). Use of social media has an impact on attainment of organisational objectives too. It promotes openness and transparency in public infrastructure and has the ability to minimize corruption. Furthermore, social media can boost creativity and technological deployment in government agencies. Using social media for various reasons improves public administrators' response, customer experience, and employee engagement. According to Demircioglu (2018), social media usage helps to improve the motivation levels of government workers (Ferro et al., 2013; Sharma & Bhatnagar, 2016), ultimately translating into the better performance of the organizational units.

6.4 Emergence of "Celebrity Servants"

Public administration has earlier been the area of work where public appearances was for a limited number of assigned people or top people of institutions when and where necessary.

Social media has given an opportunity to all the public administrators, like other professionals anywhere else, to be in the public limelight due to their influence and power of the positions through the social media. Social media has given them the public microphone which was only accessible earlier to the handful of people in the society. The power and influence of their position attracts attention and is translated into the fan following and likes on their posts, similar to the celebrities. So, public administrators i.e civil servants have transformed into the "celebrity servants", where their position, influence and fan following is similar to the celebrities but actually their role is to the serve the public.

6.5 Using Social Media to Detect Outbreaks

People from different societies can benefit from digital search engines to find healthcare information. Using data on search behaviours to detect and monitor diseases and indications is a relatively a new method. Technologies that employ social media, search results, and other online sources provide unique and cost-effective techniques for identifying and locating outbreaks, and have been used extensively in the cases of SARS, influenza, dengue and many others. WeChat, a Chinese social media platform, was used to detect the SARS-Cov-2 outbreak in China in 2019.

Outbreaks can be predicted and tracked using algorithms that can be applied to twitter posts and data kept on smart phones. Acquiring patient data, reporting to health professionals, and producing reports using existing mechanisms is difficult and expensive. Researchers can now use the large amount of data available on the social media for very little cost because of advancement in syndromic monitoring tools. Detection methods use content shared on social media networks to monitor and detect alarming situations like pandemics. Public administration bodies and healthcare institutes make action plan according to the situation. Digital platforms are providing primary information but there are no official projects for case detection via social media. Flu Near You, a disease detection application that helps anticipate flu epidemics instantaneously. Individuals self-report their conditions, which the app evaluates and analyses to identify where roots disease are situated. HealthMap, in collaboration with the American Public Health Association, manages the Flu Near You service. The endeavour is being backed by private resources in order to show how useful it can be diverse industries working together to face pandemic. Medical experts, researchers, disaster management entities, and everyone else who can find the relevant data can access it on the portal. This data has great potential for use, which is disseminated across the social media. Emergency management is done by concentrating on gathering all of that material using data mining, pattern recognition algorithms, and other methods, then integrate it onto a single platform so that physicians, public health professionals, and citizens have knowledge what's going on. Apart from self-reported applications and systems, social media could be a great resource in the disease monitoring toolkit for increasing public health experts' capability of detecting infectious diseases sooner than conventional methods and to improve epidemic control. SMSIs (social media search indices) have successfully demonstrated an association with the detection of contagious diseases spread. Specific keyword searches on social media are performed to predict infectious diseases spread. With over 1 billion monthly regular users, WeChat is China's most popular social networking platform. WeChat Index data which is publicly available reveals commonly used term appeared in posts, keywords and queries. Researchers collected daily user data for four months using WeChat Index by using keywords related to the SARS-Cov-2, SARS, severe acute respiratory syndrome, pneumonia, fever, cough, shortness of breath, fatigue, stuffy nose, runny nose, diarrhoea, coronavirus, novel corona in Chinese language. So, COVID-19 has accelerated the development and enhancement of already developed pandemic detection systems throughout the world, especially using the social media.

6.6 Public Sentiment Analysis

Two-way communication possibility between the Government to Citizen (G2C) and Citizen to Government (C2G) through social media have given governments the ability to detect and analyse the public sentiments in real time. Traditionally, the public sentiment collection and analysis have been a tedious and time-consuming job which involved the intermediaries and substantial financial and temporal costs. Apart from the time consumption, the sentiment detection techniques involved self-reported surveys and enumerators, which can not be bias-free due to inherent methodology of data collection. This biasness ultimately affected the quality of data, analysis and response. Social media for the first time have enable the governments to detect the sentiments on the social media which is largely unbiased and is real-time.

Large scale collection of public sentiments through social media have found to be very useful to understand the underlying patterns and to recognize the priority areas to work upon. Figure 2 displays the public sentiment about their perception of worry in a graph, which reflects that concern for family members surpass the actual worry of infection itself. This trend may help the public administrators to design and execute the public messaging campaign which have higher impact on well-being of the society.

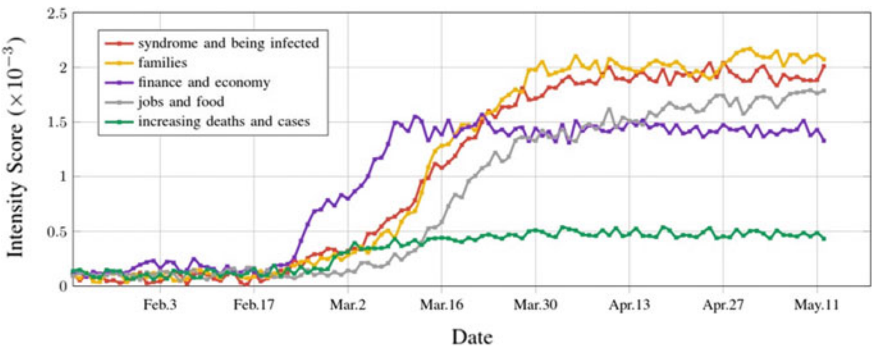

Fig. 2 Daily intensity scores for subcategories for worry on Twitter (Li et al., 2020a, b)

6.7 Engaging Influencers for Public Administration Assistance

Social media influencers and bloggers are playing an important role in the society. They are spreading awareness in their followers according to their niche. Digital creators have unique styles to share the message. They promote messages for public safety and try to wipe out the misinformation and myths among the common people. Sarah Smith is an Arizona-based Instagram influencer who is basically a mom blogger and teaches minimal lifestyle. Sarah has 27,800 and she share content about women supporting women and maintaining an environment friendly lifestyle. Two tabs in her storey highlights labelled "WAKEUP" and "CoronaVirus" are prominent. COVID-19 disinformation tops the stories in "WAKEUP," with one post stating that infants had a 0.00% probability of dying from the virus. There are many content creators educating people on administrative action plans. Governments now acknowledge their value and call them to spread awareness. Heads of states have spoken with digital creators and leaders of digital news networks, encouraged them to work as representatives for the state and reflect a constructive reputation of country. Social media, according to the them, is a "tool" for the government in its fight against the existing quo. After generating a surge of support online, the governments recognise that information online influences a huge audience notably a substantial segment of the society.

6.8 Social Media Emergency Response Integration

COVID-19 pandemic realized the importance of available resources, especially information related, to be used for the public awareness, safety and treatment. Social media platforms are among the best tools to collect, analyse, plan, report and disseminate the information for the large audience in a panic environment. Thus, social media platforms introduced special COVID-19 related features supporting the public administrators in their operations. Facebook, the most widely used social media platform, introduced the safety features as well. Facebook Safety Check (also known as Facebook Crisis Response) is a function of the social media platform Facebook. During ecological, man-made disasters, or terror-related occurrences, the service activates the function to immediately identify if people in the targeted geographical area are secure. Facebook begin testing with community-activated Safety Tests.

Safety activates under the new method if a sufficient number of individuals post about a certain situation. Once the Safety Check is operational, users will be able to share and spread the information about it. The improvements were intended to result in more constant, regular, and automated deployments around the world. Despite these shortcomings, Safety Check has evolved as a distinguishing component of Facebook's growing community goal, and no doubt it is one of the social network's most impactful features. It will probably remain a rare digital consolation for victims of disasters on the globe that it is hosted under a new centralized hub with additional resources. For a long time, people have turned to social media to learn what's going on during a disaster; even relief agencies and disaster managers have remained dependent on hashtags and livestream videos to get an understanding of what's happening on. However, the barrage of information can be overwhelming and incoherent. Facebook's crisis centre claims to break the stream of data that goes in and out of a crisis zone. New Safety Check starts with a method that tracks a crisis. It also looks for residents in the nearby area who are talking about a specific activity on Facebook. If a certain number of citizens are chatting about the incident, the program will automatically transmit information to those people encouraging them to check in as safe and asking if they would like to check the safety of other people. To put it another way, the system is first driven by Facebook algorithms, and then by the behavior and decisions of individuals in crisis area. The concept has a large following that a large number of assistance agencies and people affected by emergencies already use Facebook. Authorities in rescue operations are using Facebook Live and other real-time video platforms to get insights and choose where to allocate reinforcements. Live footage is a considerably more powerful tool to alert citizens away from trouble. During the COVID-19 global emergency, Facebook is assisting the worldwide community safe and informed. Facebook feature is helping governments to mitigate the long-term effects by assisting industries and making it easier for people to seek and provide assistance in their areas.

6.9 Localised Report and Support Communities

During COVID-19 pandemic, social media groups helped people to fight against the outbreak. Groups assist people in acquiring credible information. Facebook groups keep it simple to locate and share credible information as attention is drawn to social media to network with communities to obtain assistance during this time. Corona Warriors is a community-based approach for tracking, controlling, and preventing COVID-19. The goal of the social network group is to prevent the growth of coronavirus and to defeat Coronavirus completely.

Additionally, it helps to enable communities to equip everyone with all the resources they need to become a Coronavirus Disease warrior. The group monitors Coronavirus occurrences in area, sends out real-time warnings, and links individuals in order to combat the virus and avoid any exposure, provide the most up-to-date coronavirus information and breaking news. Individuals can learn about the symptoms of the Coronavirus and how they can be safe from it. Group administrators can post COVID-19 live broadcasts from health organisations such as the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO), official state and country health departments. Group admins can share with members to educate them how to stay safe and avoid the transmission of infections during the COVID-19 pandemic.

Table 1 Types and uses of information

	Information	Misinformation	Disinformation	Malinformation
True	Y/N	Y/N	Y/N	Y
Complete	Y/N	Y/N	Y/N	Y/N
Current	Y/N	Y/N	Y/N	Y/N
Informative	Y	Y	Y	Y
Deceptive	Y/N	Y/N	Y	N
Potential	Public	Uninformed	Non-State Actors	Opposition
Source	Administrator	Influencers	Non-State Actors	Opposition
Form of Content	News/Reports	Memes, Biased Content	Fake News, Clickbait, Hoax, Scam	Phishing
Potential target	All Citizens	All Citizens	State Supporters	Ruling Party Supporters

7 Issues of Social Media for Public Administrators

7.1 Infodemics

Emergence of social media have brought the deluge of information, especially in the case of pandemics and crises where sharing of information is considered important by every individual. The volume and nature of information is often hard to monitor and filter, especially for an individual naive user. In these circumstances, public administrators have a hard time to counter the information, which is being produced and consumed that may lead to exacerbating the already dire situation. Table 1 depicts the forms and their potential uses of the information, misinformation, disinformation and malinformation (Santos-D'amorim & Miranda et al., 2021).

7.2 Misinformation

Misinformation is when the information and intention is correct, but use is problematic. Misinformation can be considered an honest mistake while communicating on the public forums and social media. So, aside from the social media benefits, it appears that in epidemics, fake news and rumors are more infectious than diseases. For example, during the Ebola outbreak, two hypothetical Ebola treatment procedures were propagated on Twitter and Weibo, including ingestion of Nano Silver and bathing in or drinking saltwater. Misinformation about the COVID- 19 epidemic is also being spread on the internet and through social media channels. President Trump was seen advocating the treatment of the COVID-19 with a substance not considered suitable for the treatment of the virus by the experts. Considering the influence and

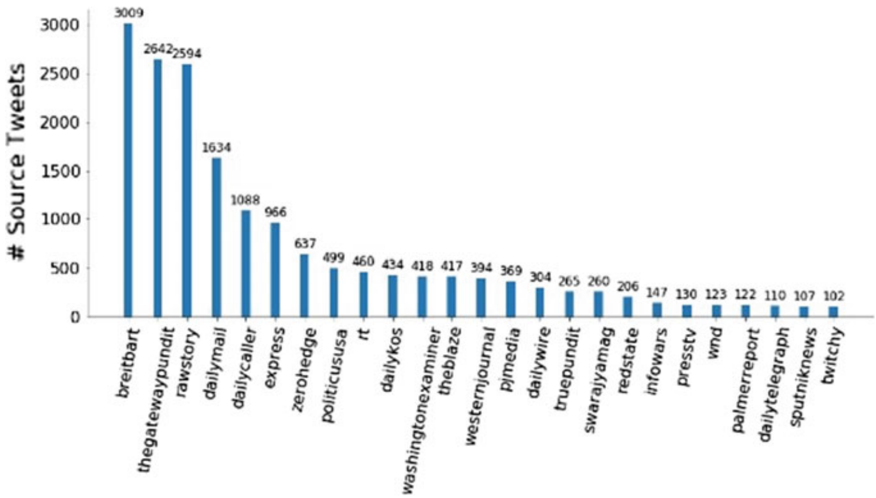

Fig. 3 Source and number of Tweets (Sharma et al., 2020)

the authority of the position, it was deeming very serious for the society to verify and consult before consuming the substance. Apart from this, there were several news outlets (Fig. 3) which were found to be spreading the misinformation on the media, creating trouble for the public administrators to perform their job.

7.3 Disinformation

Disinformation is a reflection of information which is false and misleading, and with an intention of harm as well. Disinformation is one of the most common form on the social media. Disinformation comes in the form of fake-news, clickbait, satire, hoax and fake review (Santos-D'amorim et al., 2021). Clickbait about a Republican Party (GOP) in USA, gained international audience which was titled as "GOP blocking coronavirus bill because it limits how much drugmakers can charge for a vaccine" as depicted in Fig. 4. Conspiracy theories borders between the misinformation and disinformation sometimes leaning towards the one.

Disinformation creates operational bottlenecks for public administrators where public is misled towards a certain action. Medicine, food and fuel shortages are created in societies with a false contexts based on the incorrect news of supply chain disruptions, especially enhanced by the hoarders in these situations.

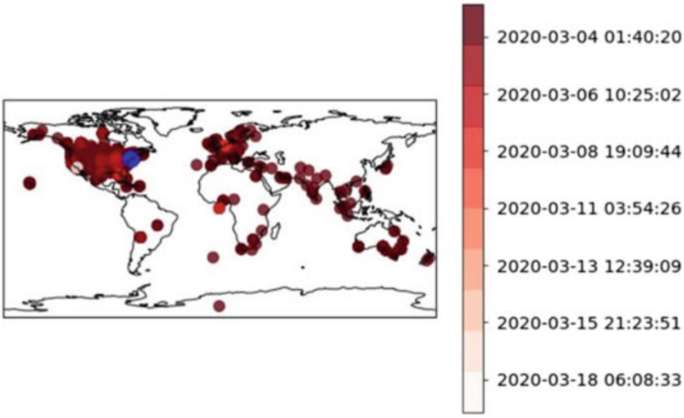

Fig. 4 Response to clickbait content

7.4 Malinformation

Malinformation is based on correct information but with mal intention. Information used in this way is from a specific angle which serves the purpose of the initiating party. Common forms of malinformation are using the correct information in the misleading context. For example a picture of a dead person can be used to create rift towards a specific ethnic or political group (Dang, 2021). Another form of malinformation is the misuse of personal and confidential information which is normally abundantly available to the public administrators (Santos-D'amorim et al., 2021).

Every problem can be solved with the right tools and mindset. Problems of misinformation, disinformation and malinformation can be addressed as well. It is suggested that use of experienced fact-checkers to determine which information is incorrect, and then participating in some form of making adjustments, marking misleading information with alerts, and explicitly banning misleading material is a logical way to validate disinformation (Pennycook & Rand, 2019). By lowering its ranking in search engine results, making it less likely to be noticed by users. Machine learning approach, Natural language processing technique (NLP), Hybrid technique, Human–Machine approach, Graph-based method, and deep learning approach are some of the ways for detecting false statements. Governments should stop banning content and holding online platforms responsible for false information. This could suppress free speech by making people afraid to discuss their political views for fear of being labelled as false news. Such extremely restrictive regulations could create a dangerous precedent, encouraging authoritarian regimes to stifle freedom of expression. Through algorithms and crowdsourcing, internet companies could invest in technologies to uncover bogus news and identify it for users.

Media platforms can benefit from advancements in fake news and hoax identification. The detection of misleading information can be automated, and social media platforms should invest in this skill. Facebook has acknowledged the issues with fake news and is taking steps to address them. It is intended to raise awareness about the issues of false news while also increasing overall trust in journalism industry. When appropriate, the firm has taken action against individual people and pages spreading false information, removed them from the website.

Twitter has indicated emphatically that it will not be the arbitrator of facts. Journalists, professionals, and interested people post alongside in seconds, correcting and criticizing public debate. Every day, these critical interactions take place on Twitter and it's trying to make sure to surface the best and most relevant content and context first." In other words, the platform does not aim to directly counteract misinformation. Though it fights back against spam and manipulation, especially when it comes to bots. Millions of accounts have been deactivated because of this.

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Effective Public Administration Strategies During Pandemic Crisis: A Case of Role Played Military in Vaccine Administration in Sri Lanka

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Abstract Covid-19 can be considered an unexpected disaster for the entire world. Still, professionals are calculating the consequence and effects in terms of different dimensions. The developing countries have been badly got affected by this pandemic. As the world bank predicts the most damaging effects of this crisis will however only be visible in the longer run. Sri Lanka also had the same effect as Covid-19 and the country has to have proper administration with given recourses. In this scenario, the role played by the Sri Lankan military cannot be underestimated. Aligning with the negative impact of the economy, lack of medical facilities in an obvious public health crisis, it was the military that provided answers to many issues such as building temporary quarantine centers, repairing existing medical centers and hospitals, building beds and other immediately necessary equipment, maintaining supply chains, helping the police to maintain law and order in the country, identifying and preventing the spread of cultures. This article discusses public administration in Sri Lanka and how militarily has assisted in vaccination program by shedding light on Sri Lanka success in vaccination program with some other best practices as well.

Keywords Public administration · Covid-19 · Vaccination · Sri Lankan military

1 Introduction

Even though Dye (2013) summarizes public policy to 'whatever governments choose to do or not to do' (p. 1) this simple definition speaks volumes. It points out what public administration does and simultaneously what it does not. Cochran and Malone (2014) define public policy as the actions the governments carry out for the betterment

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of the public. Kraft and Furlong (2018) claim public policy as what the public officials do or do not do in relation to public problems. In summary, public policy is all the actions the governments take through its officials, institutions and mechanisms using legislative processes for the well-being of its citizens.

During the pre-colonial period the public policies were dictated by the monarchy. The administrative system was facilitated by the regional chieftains; the king's public officers, who were vested with numerous powers to take decisions. These regional chieftains administered the public policy programs in their specific regions on behalf of the king. But if the regional chieftain fell from the favour of the king, the decisions were taken by the king himself. Thus the decentralized power got reversed. Before the advent of the colonial era some parts of the island were under the South Indian kings or their representatives who have made the decisions in those specific regions. Irrespective of the locality, the Sri Lankan administrative system was the 'self-sufficient and sustainable' (Hennayaka, 2019, p. 29) village-based system till it was abolished by the British in 1818.

The colonial era in Sri Lanka commences with the Portuguese who arrived in 1505 but they and the Dutch could impose their rules and regulations only within the Maritime Provinces. So they did not have a greater influence on the public policy formulation and administering the public policy programs in Sri Lanka. The foundation of the majority of the public policies that the Sri Lankans practice even today had been laid during the period of British administration that began in 1815 (Priyantha et al., 2019).

The Ceylon Civil Service (CCS) which began in 1798 later expanded and was responsible for making public policy decisions and administering such programs for the central government and regional administration. The members of the CCS were the Britishers and became both the formulators and the enforcers of the public policies. As the political administration got expanded, the British administration established many departments to systematize the service provision to the general public. Due to this, the Sri Lankans got introduced in to different public policies on offer through centralized administrative system. The nationalization or so called peopalization reforms introduced by the premier S. W. R. D. Bandaranaike in 1956 onwards changed the shape of the Sri Lankan public policy (ibid.). The 1972 and 1977 governments have been accused of the politicization of the public service and thereafter, the precedence of this practice has become a malady to the entire nation (Liyanage et al., 2018).

The post-colonial period marks with the modern day bureaucracy in Sri Lanka. Presently, the powers of the Sri Lankan administrative system had been decentered to a greater extent that in theory each and every individual in the country has an opportunity to raise his or her voice in the decision making process by electing the members to represent their concerns. But the downside of this expansion was the excessive recruitments done to the public sector that had been unbearable to the national budget and unproductive and inefficient against the finances invested on it (Athukorala et al., 2017). The attitude of the general public nurtured towards the public sector was a safe haven with many unnecessary perks to be enjoyed. This selfish attitude still to be continued even among the majority of youth when seeking employment.

After gaining the Dominion status in 1948 and instituting the 1972 Republican Constitution, Sri Lanka had begun to introduce its public policies by the successive left-wing and right-wing regimes or coalitions that got elected to power. The public policies with the left-wing regimes were mostly socialist or Marxist whereas the right-wing regimes were more prone towards the capitalist, neo-liberal policies (Goonewardena, 2020). At the initial stage, the public policy formation was mainly based on the British tradition. With the introduction of the neoliberal policies through open economy in 1977 and the development of information and communication technologies made the Sri Lankan community aware of what is happening in the other regions in the world, mainly, North America, Europe and South East Asia. Other than the 1971 insurgency, 1988–1989 uprising by Janatha Vimukthi Peramuna (People's Liberation Front) and the Liberation Tigers of Tamil Eelam's (LTTE) ethno-national conflict in Northern peninsular for nearly three decades, there have not been a major struggle to have or change the public policies on offer.

The most important element during this period was the influence of India as the superpower of the region pressurizing Sri Lanka to decentralize its political power through local government bodies. The Sri Lankan administrative system constitutes mainly through the central government, provincial councils and the local government bodies. The discretionary power of making the public policy of the central government has been reduced after the introduction of these. The main criticism was the central government does not look in to the needs and wants of the minority groups, so they demanded that the policy making powers should be granted to them.

Central government of Sri Lanka is where the parliament or legislature serves as the law making entity. All the public policies are codified with the consent of the majority vote through the members of the parliament who are believed to be the representatives of the people. The second level is the provincial councils established under the 13th amendment to the 1978 constitution. These have powers over education, health, transport, agriculture and social services of each province. Even though the constitution proclaims the land and police powers, the central governments have been reluctant in granting those powers due to the doubts over the politicization of these institutes or thinking that they may get in to the wrong hands. The public policies regarding the people in the provinces are secured by these provincial councils. The third level is the local government bodies that constitute municipal councils, urban councils and divisional councils that provide basic services to the people who live in those areas.

The public administration system that implement and monitor the public policies has also had a British outlook at the beginning. During the British period almost all the public servants were Britishers themselves and the main authority lied in the hands of the Governor (Navarathna-Bandara, 2013). During the latter part of the British occupation the British government trained a limited number of locals to serve in their administration and Sri Lankan governments opted to continue the same fashion even after the Britishes left. By now the Sri Lankan public administration system operates through ministries, departments and statutory boards. All these governmental bodies have been providing the necessary services to the general public to empower their lives, socially, politically, economically and culturally.

Presently the public administration has been seen and defined by many disciplines in diverse ways. Political, legal, managerial, cultural and occupational dimensions explain public administration in society from their own disciplinary perspectives (Shafritz et al., 2017). In this discussion the public administration strategies are viewed from an eclectic perspective. Even though at superficial level it seems that the public administration mainly belong to political dimension, the complexity and the networked nature of the present society make public administration to be assessed from a holistic perspective.

Holzer and Schwester (2011) define public administration by synthesizing many definitions they have studied since the time of Wilsonian definition on public administration. According to them public administration is

> the formation and implementation of public policy. It is an amalgamation of management-based strategies such as planning, organizing, directing, coordinating, and controlling. It incorporates behaviorally-based practices adopted from fields such as psychology and sociology. All of those strategies and practices are utilized within a democratic framework of accountability. The formation and implementation of policy, while formally controlled by government managers, has since been expanded to include the nonprofit and for-profit communities (p. 32)

that offers political, social, sociological, political, economic, legal, psychological and managerial dimensions together.

In administering the public policy programs, the Sri Lankan society has experienced the success of the Sri Lankan armed forces in duties beyond their nature. Traditionally the three armed forces; the Army, Navy, Air Force and the Police personnel in Sri Lanka have performed only their military duties when and where needed. Unless otherwise the expert services are needed and requested, the three forces were only limited to their specific military services. Always it has been the police personnel who had the contact with the civil society. But the humanitarian operations towards the end of the ethno-national conflict in 2009 proved the world how far the Sri Lankan forces have been capable of maintaining a higher level of professional civil military relations (Wijayarathne, 2015). This phenomenon of the military forces added a new dimension to the public administration system of the country.

The notion that the public administration is only limited to the government officers of public service personnel is in a transition. The officers selected and recruited to the Sri Lankan administrative services receive a special training to serve in any part of the country. The military personnel were trained only for military services creating a gap between the military and the civil society. In all democratic, Third World countries should take necessary steps to integrate the military and the civil society together. What is most important is the rigorous training these military personnel undergo. The members of the civil society do not get in their employments such a training. Therefore, in a chaotic situation who have the strength, courage, adventurous nature and perseverance are the key to face those. The military personnel have all the above elements integrated in to their character during their training.

Sri Lanka had been undergoing a series of disasters such as recurrent floods, landslides, droughts, bush fires, oceanic disasters and presently, the corona virus pandemic. During all these instances it was noted that the Sri Lankan people were gifted with the support extended by the military in many ways. Since time immemorial the Sri Lankan military forces were recognized only to maintain security of the land, air and sea to preserve the territorial integrity. But the recent situations have proved time and again that the Sri Lankan armed forces are capable of contributing immensely to the country's socio-economic development as well through development drives and humanitarian assistance. The military was not limited to the barracks and rather than being away from the civilians, the force personnel have been deployed to provide services to the general public; bringing in a novel theme to public administrative practice in Sri Lanka. This type of ideological transformation is vital especially when we think of the critical nature of the Covid-19 pandemic.

When looking at the civil military relations from all the theoretical standpoints, all the available literature looks at the relationship between the ruling institutions of the country on one hand and the institutions of the military as totally a separate institution (Feaver, 2003; Huntington, 1957; Janowitz, 1960; Moskos et al., 2000; Schiff, 2012). While the members of the civil society is more liberal in to their approaches, the military personnel remain to be extremely conservative. The gap, according to the practical reasons such as trust, between the two spheres, cannot be merged. Throughout history both sides have been sustaining totally opposite sets of values, attitudes, norms and beliefs. Since all these theories have their own limitations it is a high time to look in to a new theory that explains the current context well.

The present context demands the military to be versatile in service provision rather than limiting its services to warfare or its associated activities. The Sri Lankan government has been deploying its military forces to many public services after the end of the ethno-national conflict in 2009. The Indian Ocean Tsunami that wrecked the country in 2004 too witnessed the role of military in extending their services to safeguard the people and their properties. The military involved in Post-tsunami reconstruction in all the coastal regions that got affected by it.

Apart from that, the Sri Lankan military forces assisted the infra-structure development projects launched by the government for the Northern Province called 'Northern Spring' and for the Eastern Province called 'Eastern Revival'. These two programs mainly postulated how effective the civil-military coalition in a developing society context. The Colombo city beautification project has developed an entirely a new image in the minds of the general public about the military. As different strategies are sought by the government to empower the interconnectedness between the civil society and the military such instances are necessary.

Even though there could be dismay at integrating the military personnel in civil society activities there are numerous examples to prove that the demand side of the military that they are providing a unique services to the nation (Jayasena & Chinthaka, 2020; Jayawardane, 2021). Especially, during the natural disasters like earth slips and floods the country has witnessed how the military had supported the deployment of essential services to the general public in dire conditions. Apart from that in the international arena the military personnel are deployed to engage in international peace missions. There are certain instances the government machinery is unable to maintain continuous supplies or carry out rescue missions without the help of the military.

The state Intelligence Service, the police, the Criminal Investigation Department (CID) and all the other defence forces were combined when the President gave directives in establishing the National Operation Center for prevention of Covid-19 outbreak (NOCPCO). Unlike in many other countries Sri Lankan government knew its limitations of the spread of the epidemic. So from the very beginning the state military services were used intelligence force members to trace the contact history of all those who are tested positive. This contact tracing strategy assisted the country to lower down the impact of epidemic at the very beginning. Subsequently as the second and third waves were settling in the services rendered by the military were invaluable.

The dearth of the medical professionals, the safeguard of the healthcare professionals, lack of medical facilities were the pressing issues. In this public health crisis it was the military that provided answers to many issues such as building temporary quarantine centers, repairing existing medical centers and hospitals, building beds and other immediately necessary equipment, maintaining supply chains, helping the police to maintain law and order in the country, identifying and preventing the spread of cultures, transporting Covid-19 positive patients to quarantine centers, vaccine the people and running mobile vaccination units are some of the duties the military professionals performed.

2 COVID-19 and Military Equivalencies

In December 2019, Wuhan, Hubei Province, China, reported an epidemic of pneumonia of unknown cause (Ciotti et al., 2020). On 12 March 2020, the World Health Organization (WHO) declared a pandemic due to the worldwide spread of SARS-CoV-2 and the thousands of fatalities caused by coronavirus illness (COVID-19) (Ciotti et al., 2020). Wegmann and Schärrer (2020) argue that, as in many other crises, when confronted with COVID-19, organizations often opt to handle the crisis and its repercussions via the establishment of task teams. According to the Cambridge Dictionary, a task force is “a group of individuals gathered together to do a certain work, or a big military organization with a specific military objective to accomplish” (CALD, 2008).

Gillis (2020) summarizes the official reaction to the COVID-19 epidemic and examines, in particular, the widespread usage of military analogies by governments to explain such actions. Politicians and the media around the globe often use military analogies during times of hardship in order to conjure up powerful images of courage, heroism, and sacrifice. For instance, consider the ‘war on drugs.’ Yang (2021) demonstrate that during China’s COVID-19 epidemic, Chinese news media started to extensively rely on military analogies in their reporting.

Yang (2021), for example, states:

> COVID-19 is the common enemy of the people across the Taiwan Straits" (People's Daily, 2020, 13 February).

Yang (2021) added another example:

> COVID-19 bursts out unexpectedly, prompting anti-epidemic efforts to safeguard humanity's shared future. This is not just a "war" to contain and avoid the pandemic, but also a "fight" to "defend" the spirit of human civilization (People's Daily, 20 February, 2020).

According to Jetly et al. (2020), the new coronavirus has been likened to "the enemy" and words such as war and mobilization have been used to define the continuing response to this pandemic, especially in Western nations.

3 Global Military Clout in the Fight Against Covid

Pasquier et al. (2020) state that French President Emmanuel Macron mentioned in speech made on 16 March 2020, addressing the country, that when it comes to confronting the Covid 19 epidemi, "*We are at war with COVID-19*". According to Iddagoda et al. (2020), performing a person's duties is a critical element of military service. Pasquier et al. (2020) state that the French Military Medical Service (FMMS) is dedicated to combating COVID-19 as part of this national effort. Pakistan mobilized the military, according to Gul (2020), to help and cooperate with civilian authorities in coping with the epidemic. According to Jabbar and Makki in 2021, civil–military cooperation (CIMIC) was critical to Pakistan's effective reaction to COVID-19. CIMIC has been extensively used in Pakistan in the aftermath of many natural catastrophes. Jabbar and Makki (2021) emphasize the Pakistan Army's efforts at the National command operation center (NCOC) are important when it comes to COVID-19, civil–military interaction.

According to Chiu and Yu (2021), the Taiwanese military took many steps during the outbreak of the epidemic, including social isolation, increased cleanliness standards, suspension of courses at some military schools, and the establishment of a counseling network for troops and families. Additionally, Chiu and Yu (2021) say that the counseling network assisted instructors and cadets at military academies in adapting, innovating, and building resilience in the face of the epidemic. Hundreds of Australian troops have been sent to Sydney to assist in enforcing a Covid lockdown (Covid in Sydney, 2021). Covid in Sydney (2021) reports that a Delta epidemic that started in June has resulted in almost 3,000 illnesses and nine fatalities. As a result, troops partnered with police in infection hotspots to guarantee that individuals followed the laws. According to the Covid in Scotland website, military support is already being given to ambulance services in England in 2021. According to Jabbar and Makki in 2021, military officials in the Pakistan Army have played a key role in the delivery of relief supplies and essential medical equipment such as testing kits, ventilators, and medications across the nation.

4 Military Influence in the Sri Lankan Context of the Covid Battle

Opillard et al. (2020) note that in France, the military is often called upon by public authorities (prefectoral or ministerial) to act in favour of the people. According to Opillard et al. (2020), the French military assists civil authorities such as fire departments and police forces during severe weather occurrences, whether they are rare or recurring. Similarities exist in the Sri Lankan setting, where Sri Lanka, military soldiers are referred to as 'dheshaye mura devawhawa,' or the country's guardian god.

Navy soldiers on the Northern Peninsula conducted a tree planting campaign as part of their 'Neela Haritha Sangramaya', or green initiative. The Sri Lanka Air Force Combat Training School in Diyatalawa has offered help in transporting construction materials from Nallathanni to Makara Thorana of the holy Sri Pada in 2021 (Sri Lanka Airforce, 2021a). This initiative was performed as a Community Service Project under the supervision of Air Marshal Sudarshana Pathirana, Commander of the Air Force, where 7,500 bricks were transported up to the Makara Thorana (Sri Lanka Airforce, 2021a). Makara Thorana is a Buddhist temple adornment that is constructed in front of the temple's main gate.

According to Jabbar and Makki (2021), the Pakistan military has been noted as the first responder to every disaster in Pakistan, whether it floods or earthquakes. This is also true in the Sri Lankan situation. Tri-forces, in numerous instances, have assisted disaster relief efforts. The Sri Lanka Air Force performed a reconnaissance flight to assess the flooding scenario affecting many Sri Lanka districts due to the overflowing of numerous rivers, including the Kelani River, the Kalu River, and the Attanugalu Oya (Sri Lanka Airforce, 2021b).

The Sri Lanka Air Force stated that Vaccination Centres inoculated the general population with their second dosage at Colombo, Katunayake, Ratmalana, and Ekala in Sri Lanka (Sri Lanka Airforce, 2021c). Sri Lanka Army (2021a) states that Army soldiers built an Intermediate Care Centre (ICC) in Colombo, Sri Lanka, for COVID-19-affected Buddhist monks. The immunization campaign in Panagoda was performed by troops from the Security Force Headquarters-West in collaboration with medical personnel from the Army Hospital in Panagoda (Sri Lanka Army, 2021b). This is one example of the vaccination program done by the Sri Lanka Army.

5 Militarization and Pandemic

According to Gibson-Fall (2021), opposition to military participation in health is motivated by particular concerns. According to Gibson-Fall (2021), these include the following: (1) the unintended consequences of politicizing health interventions (for example, manipulating health goals for strategic outcomes), which are deemed unethical and counterproductive; (2) militaries' disregard for the Geneva conventions (increasing civilian casualties, targeting of civilians in situations); and (3) the adoption of health-related 'hearts and minds' initiatives.

National security, humanitarian assistance and disaster relief (HADR), and diplomatic relations are the Army, Navy, and Air Force's traditional missions (Iddagoda et al., 2020). According to Iddagoda et al. (2021) certain similarities and dissimilarities exist between organizational culture and military organizational culture. According to Kalkman (2021), one of the primary reasons for sending military forces to combat the COVID-19 epidemic is that the armed troops have what civilian health organizations lack (in sufficient quantity.

Emphasizing the notion that military aid is required during the COVID-19 epidemic,

Kalkman (2021) stated that:

> Medical facilities and services are easily overwhelmed when a pandemic breaks out, while armed forces are capable of rapidly mobilizing significant (medical) resources and are comparatively well-organized to operate under conditions of uncertainty and stress.

Kalkman (2021) further stated that:

> In addition, they may conduct activities that contribute to the health efforts but fall outside the scope of health organizations (e.g. enforcing a lockdown).

Manuj C. Weerasinghe, director of the Department of Community Medicine at the University of Colombo, expressed his thoughts on military support for the fight against Covid-19.

> "A pandemic requires rapid action. The military has the capacity and the resources—they can run quarantine centres [the military runs 54 centres, according to official sources], and maintain supply chains. The public health sector working hand-in-hand with the military has shown results now, hasn't it," he said, pointing to Sri Lanka's relatively low number of positive cases that sceptics attribute to "low testing" (Srinivasan, 2020).

President of Sri Lanka, Gotabaya Rajapaksa, is a former Army officer. He is taking steps to halt the spread of the epidemic in Sri Lanka. Ramachandran provides states in 'The Diplomat' that:

> Critics have also drawn attention to the Rajapaksa government's militarized response to COVID-19. While militaries can play a useful role in natural and other disasters with rescue operations or in providing logistical support and even in a pandemic situation to swiftly build infrastructural capacity or ferry medical equipment, in Sri Lanka, it is visible at every stage of the COVID-19 response (Ramachandran, 2021).

This is a new hazard for the whole planet. And it is critical to overcome this. Authorities may potentially make errors when implementing these Covid-19 prevention measures. One such instance was cited in the International Commission of Jurists, where it was said that 'vulnerable populations bear the cost of militarization of the COVID-19 response.' They state that:

> On 15 October 2020, the Sri Lankan authorities imposed curfew in parts of Katunayake Free Trade Zone (KFTZ) after hundreds of workers at the Brandix Fashionwear Factory in Minuwangoda tested positive for COVID-19. More than 1500 people connected to the garment factory had been infected with COVID-19 since 9 October, and four factories, Chiefway Katunayake, Next Manufacturing, Naigai and Okaya Lanka, shut down (International Comission of Jurists, 2020).
>
> Many KFTZ workers migrate from rural areas in Sri Lanka and live in overcrowded boarding houses with minimum facilities. According to the media and civil society reports, soldiers raided the workers' boarding rooms, telling them they had five to ten minutes to pack their bags. The workers boarded crowded buses and headed for quarantine centres which were not established according to procedures established by law (International Commission of Jurists, 2020).

This reaffirms the statement made by Sri Lanka Army Commander General Shavendra Silva, who, in outlining the measures they are doing to combat the Covid-19 epidemic, emphasized the Sri Lanka Army Commando Regiment's slogan, Nothing is impossible.' General Shavendra Silva, Army Commander, mentions this in discussion with Faraz Shauketaly on Newsline Live—30/04/2021. Of April 2021, Sri Lanka saw an unexpected rise in Covid-19 patients.

> We cannot impose restrictions on a consistent basis. We provided guidance on proper conduct throughout the Sinhala and Tamil New Year periods. Regrettably, the majority of individuals did not adhere to those over the New Year time. They conducted their usual shopping before to the new year. This is the explanation for the rapid increase in patient numbers. And another reason Sri Lanka is currently suffering a viral strain that is spreading rapidly—(Army Commander General Shavendra Silva, 2021).

Army Commander General Shavendra Silva further said that:

> The Sri Lankan military operates the Qurenteen complex. As a result, we will guarantee that our magnificent country never runs out of qurenteen amenities. Hospitals are experiencing a bed scarcity. Already, the army has begun constructing 10,000 hospital beds. We have backup measures in place for 2021-Army Commander General Shavendra Silva.

General Shavendra Silva, Commander of the Army, said that the tri forces headed by the Army were 100 percent effective in their quarantine process for COVID-19 mitigation and that no one in their care was able to transmit the illness to another, thus protecting 3500 people (Nothing is Impossible, 2020). On 12 April 2020, when addressing the Kilinochchi Field Force Headquarters, he stated that:

> We were able to prove that *Nothing Is Impossible.* Although this was the first time we were experiencing such a procedure, no one under our care spread the infection to another. In this manner, we were able to protect 3500 people. Our success is 100%—Army Commander General Shavendra Silva (Nothing is Impossible, 2020).

It is indisputable that there are widespread misconceptions regarding militarization in society and among the general public. It seems as if civil society, mainly lay culture, lacks a clear understanding of militarisation. They perceive this as militarization if the military facilitates the vaccination procedure and provides other medical aid. This is apparent in many famous Facebook postings from the year 2021. One postings included a photograph of a civilian, a woman being vaccinated by medical professionals, as another military nurse holds her baby. Another Facebook post includes a photograph of an elderly woman visiting a vaccination facility. Two military personnel are supporting her on each side since she was unable to move alone. According to the Facebook post, "if this is militarization, I approve."

According to Adelman (2003), militarization is a progressive process in which a person or object progressively falls under the military's authority or learns to rely on militaristic principles for survival. Obtaining military help in the event of a Covid-19 epidemic is not militarism. It is more about enlisting military assistance, since this is a difficult-to-control worldwide epidemic.

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Government Initiatives and Responses to COVID-19 Pandemic: The Case of Turkey

Cenay Babaoğlu and Onur Kulaç

Abstract COVID-19, a type of Coronavirus, has taken over the entire world and is threatening thousands of people's lives. Therefore, the World Health Organization (henceforth WHO) has announced that COVID-19 is now included in the pandemic diseases group. Governments around the world have adopted various policies to combat the pandemic. During this process, it has been observed that policy transfer between countries has improved significantly, and cooperation and solidarity have become prominent. Turkey is one of the most affected countries by the COVID-19 pandemic due to its high population density and movement and being a center for tourism, foreign trade, and transfer flights. The foremost aim of the study is to scrutinize the steps put forward by the Turkish government in terms of various policy fields. This study reveals that the Turkish government, with all its bodies, makes a valuable and promising effort during the pandemic process in different policy areas.

Keywords COVID-19 · Pandemic · Turkey · Public administration · Public policy actors · Health policy

1 Introduction

In recent years, the world has had to tackle severe transnational crises such as terrorism, global warming, and migration; now, it faces a new virus crisis following MERS and SARS. The situation has also been difficult for supranational organizations, which have emerged as a solution proposal for such supranational troubles. It cannot be said that international actors, who have previously dealt with terrorist attacks, global migration problems, and the resolution of humanitarian crises, have risen up to the challenge of the pandemic process.

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The novel strain of Coronavirus called COVID-19 was first detected in December 2019 in Wuhan, China (WHO, 2020a), where pneumonia cases of unknown cause were reported in a seafood market. On January 12, 2020, the WHO announced that the cause of these complaints was a new strain of Coronavirus (2019-nCoV) (TÜBA, 2020, p. 15). 2019-nCoV-induced pneumonia was officially named as novel coronavirus pneumonia in China on February 8, 2020. This new virus has become a global problem in a short time and has become a rapidly spreading health problem that knows no boundaries (Carter & May, 2020). On February 11, 2020, the WHO announced a name for the new coronavirus disease: COVID-19. On March 11, COVID-19 was named a global pandemic (WHO, 2020b).

The General Secretariat of the United Nations urged governments to make efforts to combat the COVID-19 epidemic on March 19, 2020 (Zhou et al., 2020, p. 78). As of August 24, 2020, COVID-19 is a public health emergency of international concern that has caused 865,154 confirmed deaths and 26,171,112 confirmed cases in over 216 countries (WHO, 2020c). Therefore, all governments need to develop early recovery plans, strengthen community-level preparedness, and build a strong base for the health and economic sectors (Bai et al., 2020). The European Union (henceforth EU), for example, focused on public health and the socio-economic impact of COVID-19 (Djalante et al., 2020, p. 2). The EU policies, which are allegedly insufficient for member countries, have faced backlash in countries such as Italy and Spain. As opposed to an active decision-making force, the WHO's position as a reactive data gathering source will also be one of the issues discussed in the future after the pandemic. It can be argued that after this process, the formative effects of international actors regarding their national policies will be re-evaluated.

During the pandemic, having nationalistic orientations prioritizes local interests and poses risks to global cooperation (TÜBA, 2020, p. 29). It is conceivable that the international organizations that have allegedly failed during this period will face more challenges by this orientation. Furthermore, national public administrations have been affected by COVID-19 due to its multidimensional nature since it is an all-encompassing problem directly related to many different policy areas. Besides the health sector and health policies, other topics such as economic, commercial, security, administrative, and technological aspects of the pandemic have become constant discussion topics. Furthermore, a variety of studies were conducted from different perspectives (see Babaoglu & Kulac, 2020; Dodds et al., 2020; Javaid et al., 2020; Lazzarini & Musacchia, 2020; Melo & Cabral, 2020; Nicola et al., 2020; Shaw et al., 2020; Ting et al., 2020).

Turkey is not immune to the discussions as mentioned above. During the pandemic period, production capacity in aid programs is an essential arbiter of success in the health system regarding the COVID-19 management process. Turkey was one of the earliest countries in the world to take precautions regarding COVID-19. Turkey has taken measures to determine the epidemic source, diagnose it, and develop treatment methods and follow-up. Actions have been taken, such as training health personnel, providing protective equipment and hygiene, limiting population movements to prevent contamination, and quarantine and observation practices for healthy people. (TÜBA, 2020, p. 30).

As Turkey is a significant transfer center between Europe and Asia and a leading tourist destination, it is overwhelmingly worth examining the Turkish government initiatives and responses to COVID-19 pandemic to gain a better insight into the future projection of the pandemic. Moreover, this pioneering study attempts to demonstrate the reactions of the new government system of Turkey to the COVID-19 pandemic. In this study, we examine Turkey's process management in terms of public administration and its activities in the context of fighting against COVID-19. To do so, we first scrutinize the spread process of the virus in Turkey and then move on to evaluating the decisions and practices. To this end, Turkey's policy responses to COVID-19 from public administration and policy will be discussed. In this framework, the Turkish government's legal, institutional, and administrative steps will be examined in terms of various policy fields.

2 The Methodology and Limitation of the Study

Countries have developed policies and programs under different headings to combat the epidemic. In this process, policies can be titled as Emergency Plans, Surveillance Policies, Health Services, Prevention Studies in Society, Continuity of Basic Services and Improvement Policies, Emergency Communication Policies, Research, Development and Evaluation (Yıldız & Uzun, 2020). This study is an effort to put forth the initiatives and the Turkish government's responses in the pandemic process. To this end, it aims to scrutinize Turkey's policies in the policy fields of health, technology, education, and economy. Also, issues such as preparations before the pandemic, policy actors playing a role in the pandemic process, and general measures are examined in the study. As the study's methodology, the relevant actors' official statements, legal regulations, and academic studies were reviewed in detail within the framework of the mentioned subjects and objectives. The authors shaped the analysis of higher education policies during the pandemic process due to their observations and experiences in higher education institutions they are affiliated. As with any study, it is possible to express that there are several limitations to this study. The study's most important limitation is that the pandemic process is still ongoing, and the measures are taken, and the policies followed can be changed very often. The determinations and evaluations made throughout the study are valid for the study's period. This study was conducted between 2020 and 2021, and therefore the findings and analysis cover and are limited to this period.

3 Case Study: Implementation of Polices in Turkey

The governance mechanisms, policymaking dynamics, and the countries' international engagement levels are the critical elements in combating the COVID-19 pandemic. Governments in different parts of the world such as Asia, Europe, and

North America respond to the COVID-19 pandemic from a global to a national level. In this manner, various legal, lifestyle, health, and science recommendations are offered to contribute to disaster resilience (Djalante et al., 2020, pp. 4–5).

The USA is the most affected country by the crisis as of September 26, 2021, with total cases reaching 42,770,371 and total deaths 684,884 (CDC, 2021). Carter & May (2020) state that the USA's Trump administration being inconsistent in its targets and discourses about combating COVID-19 is one reason for the failure. In Turkey, the first cases were seen on March 10, 2020 (HaberTürk, March 11, 2020) and was followed by clear political rhetoric on March 11. In this process, Turkey has provided medical aid to nearly 80 countries, including the United States, the United Kingdom, Spain, and Italy, and has taken a leading role in global solidarity in fighting against the pandemic (Imga & Ayhan, 2020, p. 5). The most important reason for this consistent and clear stance is the pandemic influenza action plan prepared in 2019 (Ministry of Health-Turkey, 2019).

The contribution of academics to the COVID-19 process is crucial to understanding policy formulations from various perspectives. The Turkish government can carry out the process more functionally by taking advantage of the determinations and analyses put forward by academics this way. Many scientific papers are addressing the COVID-19 from many different angles such as COVID-19 in children (Tezer & Demirdağ, 2020), the effects of the COVID-19 pandemic on Turkish economy (Açıkgöz & Günay, 2020), the evacuation of the citizens from different countries (Şencan & Kuzi, 2020), the protective measures for healthcare personnel (Ağalar & Engin, 2020), and the quarantine and its legal dimensions (Kılıç et al., 2020), pandemic's effect on digitalization of higher education in Turkey (Babaoğlu & Kulaç, 2021a), security issues during the pandemic (Babaoğlu & Kulaç, 2021b), Turkey's general policies for struggling against coronavirus based problems, (Kulaç & Babaoğlu, 2020), crisis management during the pandemic (Yıldız & Uzun, 2020), comperative strategies against the pandemic (Duran, 2020), Turkey's combating policy and successful sides against this crisis (Presidency's Directorate of Communications, 2021) and the reflections on the pandemic in the future of the world have been analyzed (Şeker, Özer & Korkut, 2020).

Studies on pandemic preparedness plans in Turkey began in 2004 and were completed in 2006. The Avian Influenza and Human Pandemic Preparedness and Response (Amp) (World Bank, 2006) plan was carried out in the same year. The Pandemic Influenza National Preparation Plan was completed in 2019, in line with the previous outbreak experiences and the recommendations of the ECDC (European Center for Disease Prevention and Control) and WHO (Ministry of Health-Turkey, 2019, pp. 4–5). In this context and the preventive and protective services, preparations have been made to fortify health and laboratory services. Besides, capacity studies have been carried out to produce medicines and vaccines (Ministry of Health-Turkey, 2019, p. 3).

After the first COVID-19 patient in Turkey was notified on March 11, 2020, nearly 15 million tests were performed in total. Between 04 – 10 September 2021, 2,110,541 tests were performed. The total number of cases in the weekly report of this, the daily

Table 1 Weekly summary table of COVID-19 in Turkey (04/09/2021–10/09/2021)

Indicator	Rate/Number	Indicator	Rate/Number
Number of test	2,110,541	Rate of first dose of vaccine (by population)	86,28%
Number of new patients	155,346	Rate of dose dose of vaccine (by population)	70,59%
Number of deaths	1,825	Total number of vaccination	108,305,902
Number of new hospitalizations	7,902	Population of Turkey	83,614,000
Total number of patients	6,613,976	Rate of first dose of vaccine (by population)	86,28%
Total number of deaths	59,384	Rate of dose dose of vaccine (by population)	70,59%

Source Ministry of Health-Turkey (2021). *Weekly COVID-19 Situation Report of Turkey*

number of cases and vaccination of the second week of September 2021, are shown below (Table 1).

In total, 800,000 laboratory-confirmed COVID-19 patients have been reported in Turkey. All laboratory-confirmed COVID-19 patients' death rate was 2,70% (The Ministry of Health-Turkey, 2020). The total number of doctors in Turkey is 164,594, and the number of nurses is 198,465. The number of patients per doctor is 498,2, while the OECD average is 341,3. The number of patients per nurse is 431,2; the OECD average is 102 (TÜBA, 2020, p. 34).

3.1 Policy Actors

Turkey is also in cooperation with official, unofficial, and international policy actors within its strategy framework during the pandemic. Turkey has systematically followed a road map in the COVID-19 process and implemented regulations step by step (see TÜBA, 2020, pp. 30–31; Tufan & Kayaaslan, 2020, p. 501). In this context, Turkey adopted an incremental decision-making model while shaping its pandemic combat policy. In the incremental model (see Anderson, 1979; Birkland, 2016; Dye, 2013; Lindblom, 1959), minor and additional measures are taken to have a stable crisis management process. Following the first case in China, a Scientific Board was established by the Ministry of Health in Turkey. The Scientific Board, which is an advisory committee, has played a functional role in determining the measures to be taken in the pandemic process through frequent meetings. Composed of members with different medical specialties, the Scientific Board has made significant contributions in raising public awareness about the pandemic. Coordination, a principle in administrative science, has been prominent in the Turkish government's policy of combating the pandemic. Turkey's public body, which provides services in different policy areas, has worked in harmony during the pandemic process. Ministries and the Presidency Policy Councils have been involved in the policymaking process on issues that fall within their jurisdiction. The mismanagement practices experienced between the government, scientists, and the public in Italy (Ruiu, 2020, p. 7), which led to policy failure, have not been observed in Turkey. In this manner, the decisions taken in the process of combating the pandemic in Turkey are formulated based on scientific data, and the process is progressing successfully with generous support from the public.

When Turkey's policy of combating COVID-19 is examined, it is observed that different practices have been implemented on a case-by-case basis in each province. Provincial pandemic boards convened under the governor's chairmanship and attended by the chief hospital physicians have had the authority to make province-specific decisions. Therefore, governors determine the measures to be taken in provinces, taking the population density and the number of cases into consideration. The establishment of the Fidelity Social Support Groups under the district administrations' authority has provided significant benefits for the citizens over 65 years of age during the pandemic period. In this context, the needs of citizens over the age of 65, such as shopping and health check-ups, have been met by the Fidelity Social Support Groups (Yıldız, 2020).

Local governments also have an essential role in the pandemic process. It has been observed that different local governments produce other solutions to similar problems and waste resources, primarily due to the issues of coordination between local governments and the central government. For example, local governments used intensive resources to disinfect schools, mosques, and other closed public areas, while these areas were soon closed for use, and efforts were wasted. It is possible to encounter many digital efforts at the central government and the local level. For example, the website established by Adana Metropolitan Municipality during the pandemic addresses different segments of society and other needs. Besides facilitating access to public services, audiobooks for children and some movie viewing extensions have been added to the website. Bursa Metropolitan Municipality defined the pandemic process as the "new normal" and took various measures. During this period, efforts were carried out to maintain social distance with the help of digital sensors. A crisis management example was exhibited alongside digital transformation with an action plan defined at short, medium, and high-risk levels.

Street-level bureaucrats play a crucial role in implementing policies (see Lipsky, 1980, 2010). It is known that the success of the policy is most likely related to the devotion and effort of the street-level bureaucrats. The services delivered by street-level bureaucrats during the pandemic process in Turkey have been highly functional. In this manner, healthcare professionals, law enforcement officers, teachers, and academics have made a notable contribution to crisis management with their services to the citizens in their areas of responsibility. Thus, through the street-level bureaucrats' diligent services, the citizens have been least adversely affected by the pandemic process carried out with a top-down implementation model (see Birkland, 2005; Ringquist, 1993; Sabatier, 1986).

Cities have been affected the most because of the growth and feeding of pandemic rates in cities (Florida, 2020). For this reason, city administrators are also prominent actors in crisis management. Mayors of leading cities implement a few necessary preparations and arrangements for life after COVID-19, a milestone for safer cities' sustainability (The Guardian, 2020). Despite the claim that mayors in the United States were more successful in fighting COVID-19 (Watts, 2020), Turkey's process was mainly carried out by the central government. However, in the two largest cities, such as Ankara and Istanbul, social policies have been developed through crowdfunding practices (Deutsche Welle, May 19, 2020).

On the other hand, it was observed that some local or central plans made in terms of health workers, health supplies and health organizations were not adequately worked. For example, the field hospital established by Adana Metropolitan Municipality on the city fairground was never used during the outbreak. It was converted into a fairground just before the second wave of the pandemic began.

The Higher Education Council of Turkey-*the central institution that oversees and directs the higher education system* - has required universities to establish Distance Education Practice and Research Centers in all universities. On the other hand, it should be noted that not every university has the same material and human resource capacity. During the pandemic and after the distance education decision, it was later understood that many universities did not have such preparation or infrastructure. Thanks to the Turkish public administration's rapid adaptation capacity, the deficit was primarily closed by using schools with ready infrastructure such as Anadolu University. On the other hand, students' problems related to internet access were also quickly overcome thanks to cooperation between the private and public administration. Due to financial incapability problems for groups who have problems to access digital activities, central administration and local governments and civil society organizations demonstrated an extraordinary effort to overcome the issues. As of September 27, 2021, universities in Turkey have started education and training, mostly face-to-face. University administrations, academicians, and administrative staff make great efforts to ensure that education and training can continue face-to-face with the planning and precautions they take.

3.2 General Measures

Since detecting the first COVID-19 case in China, many arrangements have been made within preventive measures. As also mentioned chronologically by TÜBA 2020, pp. 30–31), some of the regulations can be listed as follows: Arrivals from countries with COVID-19 cases were to be tested with thermal cameras at airports; all flights from China were stopped; all passenger flights between Turkey and Italy, Turkey and South Korea, Turkey and Iraq were stopped as a precaution; education at all levels was terminated for the academic year; football, basketball, handball, volleyball activities have been postponed; and the number of centers performing COVID-19 test has been increased. Furthermore, the following measures have been taken in various policy areas: Flexible work in the public sector was initiated; public transport vehicle capacity was reduced to 50%, and social distancing measures between passengers was introduced. Curfew was imposed on citizens under the age of 20 and over 65. Curfew restrictions have been assessed for all citizens in 30 metropolitan areas and Zonguldak province during the weekends. Later, the provinces with a weekend curfew were gradually reduced in line with the Scientific Board's recommendations. All kinds of scientific, cultural, and arts activities held in open or closed areas at national and international levels have been postponed.

The use of masks is of great importance in slowing the rate of transmission of the COVID-19 virus. The Turkish government has given priority to the use of masks and has developed various methods for distributing masks to the public free of charge. Although public access to masks is limited or impossible in many developed countries, Turkish citizens' protective mask needs have been met free and easily. Furthermore, a price ceiling was applied to the masks, enabling the citizens to purchase masks from pharmacies at very reasonable prices. The Turkish government provided practical support to dozens of countries requesting assistance during the COVID-19 process. In this regard, the medical supplies necessary for the pandemic process, especially the masks, have been meticulously delivered to other countries.

There have also been some digital security issues due to public officials being below a certain average at the point of digital literacy. Many public services need to be adapted to this new way of providing and operating services during the Covid-19 pandemic, standards, and procedures. The differentiation of service delivery standards, even between the same public organization units, is a significant problem. In this process, educational services were also often carried out remotely. During this period, universities were closed due to the pandemic, and distance education was switched. As of September 26, 2021, it has been decided to have flexibility on most of the measures mentioned. However, there are some precautions, especially for citizens who are not vaccinated against COVID-19.

3.3 Education Policy

In the pandemic process, various steps have been taken within the framework of education policies to ensure that education at all levels can be delivered smoothly. For this purpose, relevant institutions such as the Ministry of National Education and the Council of Higher Education of Turkey have taken promising education policy initiatives. Doing so aims to provide direct interaction between students and teachers/academicians during the pandemic process. The pandemic process has created an essential window of opportunity (see Kingdon, 1984) for education policy. Significant steps have been taken to make maximum use of technology in educational processes. The Ministry of National Education has established a YouTube channel that includes Turkish and English narratives of Anatolian tales illustrated by teachers and illustrated by students. TUBITAK and the Ministry of Industry and Technology developed by COVID-19 Turkey Web Portal was launched. Since March 23, 2020 distance education has been started from https://www.eba.gov.tr/ via the internet and established a new TV Channel and platform named EBA (Memurlar.Net, 2020).

Thanks to the EBA platform, students have access to thousands of various educational resources. Also, students have the opportunity to both attend live lectures and follow recorded lectures. The Ministry of National Education has made efforts to improve the EBA system's infrastructure to prevent any disruption in the distance education process during the pandemic process. The Ministry of National Education has cooperated with the leading GSM companies to connect to the distance education facilities more efficiently and smoothly. In this context, students are offered free internet access within a specific limit.

On the other hand, teachers' in-service training is also carried out through the EBA system (Özer, 2020a, pp. 1126–1128). It is considerably worthwhile that in-service training, one of the most fundamental principles of Contemporary Public Personnel Management, is offered to teachers during the pandemic process. Since personnel resource is a highly significant resource of public policies (Knoepfel et al., 2007, pp. 66–69), enhancing teachers' knowledge and skills through in-service can be seen as one of the essential gains of the pandemic process in the context of educational policies.

Vocational and technical high schools are types of high schools in the Turkish education system and cover a comprehensive education process within various professional branches. The relevant ministry created the idea of producing the materials needed within the scope of COVID-19 measures by vocational and technical high schools. For this reason, emphasis has been given to the production of cleaning materials for these high schools (Ministry of National Education- Turkey, 2020). As a result of the mentioned efforts, many materials such as masks, face shields, disposable aprons, and sterilization devices were produced by vocational and technical high schools (Özer, 2020b). The fact that vocational and technical high schools started to produce materials that are urgently needed during the pandemic process is both a remarkable success of the Turkish education policy and indicates that these high schools will be given more importance soon. It can also be described as a functional policy practice to be a policy transfer of learning for other countries in ordinary and/or extraordinary circumstances.

At the higher education level, universities started distance education, and each university has prepared a website that provides detailed information on the learning activities it has been conducting during COVID-19. COVID-19 measures were taken within the framework of the university administrations' decisions to combat the pandemic. It is of great importance to manage the process and implement step-by-step measures in crisis management. Due to thousands of university students and academics, its process must be meticulously (see Erkut, 2020, p. 126). Universities have taken steps to ensure that administrative and academic staff can work flexibly. Besides, it has been decided that personnel with chronic illnesses and pregnant personnel are considered on administrative leave. Various solutions have been offered by universities for students who do not have or have limited internet access. By using distance education programs, undergraduate and graduate courses and graduate thesis processes were handled comfortably. The Council of Higher Education has made institutionalization efforts to make the distance education process more systematic and organized. In this manner, a "Distance Education Policies Commission" was established within the Council of Higher Education's body with the participation of academicians who are experts in the field of distance education (YÖK, 2020). As of September 26, 2021, as mentioned before, the majority of courses in universities in Turkey are delivered face-to-face. Both the Ministry of National Education and the Council of Higher Education contribute to successfully implementing the process by being in intensive contact with educational institutions.

3.4 Technology Policy

In the context of the relationship between public administration and technology, electronic platforms have become widespread worldwide in providing public services in the last ten years. The Turkish government has also significantly increased the number of technology-based public services during the COVID-19 period. In this context, the number of services offered through the e-government gateway increased by approximately 25[1]% (Afyonluoğlu, 2020). The opportunity to access more services from home was provided to the citizens. Moreover, The Ministry of Health has established the http://koronaonlem.saglik.gov.tr and https://covid19bilgi.saglik.gov.tr/tr/ websites coronavirus control (Ministry of Health-Turkey, 2020). With the "Life fits into Home" (Hayat Eve Sığar)[2] application, citizens in contact with Coronavirus, who were diagnosed but decided to be isolated at home because they did not have symptoms or showed mild symptoms, started to be followed. This application made it possible to see the regions where COVID-19 cases are intense and access updated statistics.

Presidency Digital Transformation Office has opened a coronavirus information site, and the site also includes those who have recovered and the death rate. Citizens applied for their Travel Permit via the e-government portal, and applications for free face mask distribution were made through the same portal. Later, mask requests were collected through the application. Researchers will be able to access the images of the documents from the Presidency State Archives Document Scanning System (BETSİS). Presidency Directorate of Communication prepared for the April 23 National Sovereignty and Children's Day and "turkiyenincocuklari.org" website was opened. The Distance Education Gate designed by the Presidency Human Resources Office was put at the service of all public institutions and organizations and 3,3 million public personnel (Memurlar.Net, 2020). Besides, around $ 275 million worth of aid was collected from more than 900,000 individuals and organizations through SMS Donations and crowdfunding through the website (Meijer & Webster, 2020, p. 264).

It is stated that Turkey's penetration rate is 74%, that means %74 of the general population has access to the internet, while the daily internet using time is four hours for the day is above the average in the world (We Are Social Digital, 2020). On the

[1] Reached at 5,058 services as the date of 05/15/2020 and it was 4,260 before pandemic (Afyonluoglu, 2020). (See, https://afyonluoglu.org/e-devlet/tr-edevlet/).

[2] See at, https://play.google.com/store/apps/details?id=tr.gov.saglik.hayatevesigar&hl=tr.

other hand, Aristovnik et al. According to his research Aristovnik et al. (2020), while the average of computer ownership is 84% on a global scale, it has been determined as 77% in Turkey. However, according to the results of the Household Information Technologies Usage Survey published by the Turkish Statistical Institute, the rate of internet-connected phone ownership is over 99% in 2020 (TURKSTAT, 2020). This intensive use of the internet also creates opportunities to provide many services in a digital environment.

In this way, information and communication technologies were used for both combat and revival purposes during the epidemic period, and efforts were made to ensure the continuity of service provision. In this process, digital tools were used in many areas such as monitoring and stopping the virus, information, and awareness campaigns, and providing basic services to citizens. From education services to telemedicine applications, from commerce to communication, both service providers and service recipients benefit from technological tools (Babaoğlu and Erdoğan, 2021; Babaoğlu, 2020, p. 453).

In this period, the service titles offered in the electronic environment at the national level were diversified, the number of institutions integrated into these platforms was increased, and the smart city studies at the local level gained momentum. While focusing on infrastructure investments on one hand, digital services were quickly put into use on the other.

3.5 Economy Policy

According to the WTO's optimistic forecasts, global trade will fall by at least 13% in 2020 because of the COVID-19 pandemic. These estimates rise by as much as 32% in worse scenarios (Balcı, 2020). At the G20 group's emergency meeting, which includes Turkey, on March 26, 2020, it was reported that measures would be taken to ensure financial stability against the coronavirus pandemic. Moreover, ensure job and income security, protect global trade, and balance public health and economic measures (Wintour & Rankin, 2020).

In different countries, monetary expansion policies have been implemented to eliminate the economic stagnation caused by the COVID-19 crisis. The European Central Bank announced monetary easing programs of $ 850 billion, and the American Federal Bank announced monetary easing programs of $ 700 billion. In the process, Germany announced a 750-billion-euro stimulus package, the United States $ 2.1 trillion, Japan $ 990 million, Britain £ 30 billion, Italy € 25 billion, and Spain developed a € 200 billion stimulus program. (Escarus, 2020, p. 19; STM, 2020, p. 7).

Problems in the supply of raw materials and some products, especially from China, have brought new pursuits in Western economies. Turkey has also given weight to domestic production processes in this process (Escarus, 2020, p. 14). In this process, support has been given to respirator, medical mask, disinfectant, and protective clothing production. Some economic measures taken by countries during the pandemic period are shown below (Escarus, 2020, p. 64) (Table 2).

Table 2 Economic measures in different countries

	Dismissal Prohibition	Salary Increase for Retirees	Additional Payment to Healthcare Workers	Possibility of Tax Deferral for the Private Sector	Credit Support with State/Public Banks	Financial Support to Needy Families
Turkey	+	+	+	+	+	+
USA				+		+
Spain	+			+	+	+
Italy	+					+
France	+		+	+	+	+
Germany	+		+	+	+	+
England				+		+
China				+	+	+
Iran			+	+	+	+
Belgium			+	+		+
Brazil	+					+
Russia		+	+	+	+	+
Canada			+	+		+
Holland			+	+	+	+
Switzerland			+	+	+	+
Portugal			+			+
Australia			+	+	+	+
India				+		+
Ireland			+	+		+
Israel			+			+

Source Escarus (2020)

According to the OECD estimates, while the Turkish economy is expected to grow by more than 3% before the outbreak, Turkey's economic activity will fall by between 20 and 25% during this corona process. According to IMF forecasts, the Turkish economy will shrink by about 5% in 2020 (Deloitte, 2020, p. 5; STM, 2020, pp. 4–5). During this period, the following problems began in the Turkish economy (Eryüzlü, 2020, pp. 13–14):

- Increased health spending and overburdening the health sector
- Demand shock because of potential demand, not including the market.
- Supply shock because of supply chain disruption.
- Rapid increases in the unemployment rate
- Financial sector crisis.

In this process, The Turkish Government announced on March 18, 2020, a new economic relief package with 260 billion TRY ($38.3 billion) called the Economic

Stability Shield (ILO, 2020). It was also attempted to ensure the continuity of money flow to the market with a low-interest rate policy. In this process, layoffs were restricted, and premium support was provided for workers ‘ insurance. In this process, special credit rates, tax exceptions, premium supports and incentives were provided for small and medium-sized enterprises. (Escarus, 2020, pp. 107–108). In this process, state-owned banks made 20.5 billion Turkish Liras of enterprises; 795 thousand citizens also had a loan debt of 40.6 billion Turkish Liras (Balcı & Çetin, 2020, p. 34). Although two million new unemployment figures are mentioned for Turkey in bad scenarios due to shrinking business volume (STM, 2020, p. 7), there was no significant increase in this process than the previous year. In this process, government support and incentives should be considered an essential preventive. In this process, dismissals were prohibited, and measures such as short work allowances were intended to prevent layoffs (Law No. 7244, Official Gazette 17/4/2020). There is a significant contraction in the tourism and air transport sectors (STM, 2020, p. 5). Tax exceptions have been introduced to support these sectors, and some exemptions have been provided (Akbulak, 2020). Some obligations of enterprises operating in the tourism sector, such as easement fees, income share payments, accommodation tax, and payments to public banks are excluded by Law No. 7226, issued on March 25, 2020 (Balcı & Çetin, 2020, pp. 32–33). There are some measures implemented are presented below (ILO, 2020):

- Extra custom tax is lifted on medical masks and respiratory equipment.
- Custom tax is cancelled on the ethyl alcohol import.
- Stock financing support is given to exporters.
- The Credit Guarantee Fund limit is increased from 25 bln TRY to 125 bln TRY to provide SMEs loans.
- Tradesmen Credit Card is provided with a limit of 25.000 TRY without any payments for three months.
- All credit cards payments postponed until the end of July 2020.
- Exporters are given stock financing assistance to maintain capacity during a temporary slowdown in exports.
- Turkish public bank Halkbank postpones credit, interest and debt payments for three months of businesses and artists negatively affected. This decision is extended for another three months as of July 1 2020.
- The administration will increase the Credit Guarantee Fund limit from \$3.8 billion to \$7.7 billion. Credit will first be given to businesses and SMEs with a collateral deficit and need for liquidity.
- With the new legislation, the Wealth Fund will inject cash or take over private companies facing difficulty due to COVID pandemic.
- 1.6 million Craftsmen is provided with a support of 26 bln TRY. Seven hundred thousand craftsmen are benefited from a total of 17,3 mln TRY credit.
- The tariffs are raised in textile, shoes and leather to protect domestic producers.
- The utility debts will be postponed for households and workplaces whose activities are stopped due to COVID 19.
- Seven bln TRY personal finance credits is allocated

Also, very low-interest support loans were provided for citizens in need with direct cash payments. In this process, the amount loanable to buying apartment flats valued below $77,000 is increased from 80 to 90%, thus reducing the minimum payment to 10%, so that citizens could use loans, and loan-based expansions were encouraged with low-interest rates supported by the state (Akbulak, 2020). During the pandemic period, 5.5 million people were provided with 1,000 Turkish Lira ($125) of cash support per person, while 4.5 million people were paid a total of 6 billion rubles ($750 million) from partial work allowance or unemployment benefits. Besides, a total of 11.5 billion Turkish Lira to the needy (Apr. 1.5 billion dollars) were made unanswered cash grants (Balcı, 2020).

4 Conclusion and Policy Recommendations

The pandemic has shown the importance of crisis management. It also showed that the state administration is not merely a political function and that bureaucrats, especially street-level bureaucrats are important actors to this process (Imga & Ayhan, 2020, p. 7). Moreover, the power of the executive branch is crucial. The president's role in policymaking has increased with the new government system introduced in Turkey in 2018. The unique presidential system in Turkey aims to respond to social problems more urgently. As the timing of responses is crucial to the delivery of public services, especially in crisis periods, the Turkish government has given priority and the utmost attention to the continuation of the services without any disruption and delay. In other words, since time is regarded as one of the most fundamental resources of public policy (Knoepfel et al., 2007, p. 78), the initiatives taken by the government were formulated in a reasonable time frame.

As a highly significant official policy actor during the pandemic process, the Minister of Health has garnered public appreciation for his efforts, devotion, and interest. The considerable effort made by the Minister of Health has prevented the pandemic from rising to the level of crisis observed in other European countries.

Looking at the issue of illegal immigrants and border security during the pandemic period, Garrett (2020) states that the border walls are not preventive enough. Turkey has also renewed its border security policies due to the intense illegal migration flows in recent years. In some places, border walls have intensified inspections with the aid of drones (Yıldız & Ekmekçioğlu, 2018). These activities provided an advantage in the fight against the pandemic. After closing the borders, uncontrolled entry into the country was prevented, and a national quarantine environment was provided.

Policy transfer and policy recommendations are the functional subjects in public policy studies. Especially in crisis times, it is necessary to transfer policy from countries that have implemented successful practices. Therefore, Turkey, which is stably conducting the pandemic process, is a suitable country for policy transfer. A few policy proposals may be made to countries in the course of the pandemic, which is expected to continue to take effect in the coming months. As successfully implemented in Turkey, Fidelity Social Support Groups can also be generated in other countries. By doing so, governments can help disadvantaged citizens more quickly and efficiently during the pandemic process. Public support may be gained if decisions on measures to be taken during the pandemic are taken incrementally, as is Turkey's case. In crisis management, public administrators and policymakers need to benefit more from technology. If technology and public administration integration is achieved, the delivery of public services will be more efficient. As the Turkish government has successfully carried out in the pandemic process, the countries should introduce economic measures and programs to support the public in crisis times. Countries should reconsider their health policies despite the risk of repeated pandemics like COVID-19 in the future. In this context, countries should significantly increase their investments in health policies. With the measures to be taken in various fields and the policies to be implemented, governments will become more prepared for the crises in the following processes.

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Adoption of Medical Technology in Public Healthcare Sector: An Evidence from Developing Country

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Abstract In Pakistan, the public health system has seen major changes over the past 50 years regarding social and economic aspects. Since the 1990s, the provincial governments had made their different health care reforms which were undertaken to increase equity, geographic coverage, and effectiveness. However, in the past, positive results were achieved, yet by using strong and long-lasting public health strategies quality service can be attained in developing countries. Accordingly, the integration of new devices for monitoring alerting, and asking patients about their physical health, is a promising option to improve the Pakistani healthcare system through upgrading patients remotely so they don't need to go to a hospital, avoid overcrowding healthcare facilities, provide real-time surveillance, rapid patient attention, lower investments, operational cost, guaranteed level of safety, and expansion of existing areas. What makes people resist healthcare wearable technology? This article investigated whether there were acceptance or adoption barriers. Results revealed that medical wearables are commonly promoted and developed in the developed world rather than developing countries. The current situation for which governments of developing countries like Pakistan lose interested in adopting due to poor technical support, high prices, and lesser distribution channels. The four key barriers to wearable technology adoption were identified as, (i) Critical data management, security, and privacy issues, (ii) Unreliable results, (iii) Technology for low-income individuals, and, (iv) lack of clear regulations. While major challenges found were access to health services, inequalities in health care, training, and distribution of human resources in health care, and financial strategies for health care systems. It can be concluded that smart wearables with smart capabilities are a key component of the solution to ensure high-quality healthcare service should be considered. Specifically

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in remote areas of developing countries that are not currently covered and where the majority of the population lives.

1 Introduction

The global economy and healthcare are facing serious threats from the ongoing pandemic caused by the coronavirus. Healthcare is the backbone of any nation's development and growth (Samad et al., 2020). When the state faces critical situations, it is always the healthcare institutions that serve the public healthcare risks. Let it be the elimination of Smallpox worldwide, Polio from the USA, and Cholera in Asia; Bubonic plague in China causes 12 million deaths, or Coronavirus (COVID-19) killed more than 12 million people globally (Dahri & Thebo, 2020).

According to the Centers for Disease Control and Prevention, COVID-19 has a huge negative impact not only on service, manufacturing, and stock markets, as well as oil prices but mainly on the healthcare sector claiming more than 21,896 deaths in 171 countries worldwide (Dahri & Thebo, 2020). On the other hand, physiological diseases such as arrhythmias, skin cancers, depression, diabetes and ulcers, high blood pressure, fever, and others could lead to serious health problems for people of various ages (Hibbard et al., 2017; Piwek et al., 2016). it is important to recognize symptoms and monitor for diseases to prevent serious health risks, (Chen et al., 2016). This is a common problem in healthcare systems all over the globe that healthcare centers demand technological upgrades in their facilities to allow remote patient care and avoid hospital overcrowding, supervision in real-time, operational cost reduction, rapid patient attention, and lower investment in the expansion of existing geographical areas (Rashid et al., 2017). Whereas; insurance companies offer a variety of services, including premium health plans that guarantee affordable medical treatment coverage and first-class care in the best medical centers. Even though, in Pakistan, there is always a shortage of technological devices for monitoring critical patient health in real-time. So that, patients are forced to relocate to medical centers for medical checkups by the doctors in person (Jakovljevic et al., 2016).

However, there are new opportunities in the healthcare market due to recent developments in telecommunications, microelectronics, and sensor manufacturing techniques. Smart microelectronic device monitoring features are built based on data science analysis, real-time physiological monitoring. Likewise, wearable devices are available which are easily integrated into various accessories, such as watches, wristbands, watches, footwear, eyeglasses, and clothing. These are often linked to a smartphone app for front-end data visualization. In the case of smart medical sensors, these serve as stand-alone units (Kenry et al. 2016; Kumari et al., 2017; Metcalf et al., 2016; Munos et al., 2016; Reynolds & Jones, 2016).

Wearable healthcare devices are primarily designed to be used in the following areas: Intention to alert patients about a particular situation or as assistive tools for treatment plans and tracking historical data on symptoms. Patients will soon be able to access historical data and take care of themselves, revolutionizing the relations between healthcare facilities and patients (Dimitrov, 2016; Mertz, 2016; Milani & Franklin, 2017). Remote medical consultation, for example, can now be done via videoconference software like skype, empowering patients to closely monitor their health. At early stages, this technology got global recognition including countries like France, Denmark, Germany, United States, and others. Though, healthcare is available in developing countries like Pakistan, yet, technology infrastructure and system coverage are extremely weak.

As can be seen from its health indicators, strengths, and limitations as well as the other indicators that Pakistan's progress in the sector of health care over the last 50 years, Pakistan's health sector is showing slow improvements. Thus, the government should take strong steps to reform the existing health care system (Dahri & Ab Hamid, 2018). Discussions on the current structure of healthcare systems have led to the establishment of political priorities for international and national agencies, as well as local political actors, civil and human rights activists, community leaders, and managers of care centers (Cotlear et al., 2015). These limitations can be overcome by using the implementing healthcare technological strategies.

According to the UN (2018) report, 90% of the population lives in rural areas and (Dahri & Thebo, 2020) and this number will top in 2021 by 3.4 billion. Along with that, ever-increasing prices of medicines and failure to deliver healthcare visits, are devastating healthcare systems. Especially in developing countries like Pakistan, where only 22% of the population receives healthcare services from public healthcare facilities (Samad et al., 2019). There are critical issues that the healthcare system must address: Inequality, universal coverage, and service quality (Atun et al., 2015; Cotlear et al., 2015; Dmytraczenko et al., xxxx). These issues affect a majority of residents in rural and large urban suburbs (Andrade et al., 2015). Transport costs due to rural medical care delays or critical medical visits could be an area of opportunity for the adoption of healthcare wearable technology which is long-awaited.

Favorably, over 85% of the global population is under a wireless signal umbrella, and 80% of them use smartphones. Likewise, according to PTA 2014–2015 report, 90% of people in Pakistan use smartphones which can help them monitor their health issues for example temperature, pressure, images, and Others, through technological wearable devices connected over the internet (Dahri & Thebo, 2020). But, people in developing countries are less tilted to adopt these marvelous gadgets. This article provides an overview of technological healthcare wearable devices also known as M-IoT (Medical internet of things) and their improved quality in healthcare services in developing countries. This study also indicates major issues related to data security, patient medical history, barriers, and challenges to accept and adopt medical technology in countries like Pakistan.

2 Research Design

The current study evaluates the adoption of smart wearable technology and its positive effects on customer experience and acceptance (Foroudi et al., 2018). The qualitative data in the research study is examined to understand the behavior and motivation of people or groups about a social event or problem. And to analyze the relationship of those components which drive those responses.

The study answers questions such as "What are the key factors, that influence the adoption of technology, and is healthcare users ready to accept the technology? Factors such as healthcare infrastructure, government policies, regulations, promotions were analyzed the societal trends. For this, relevant literature was reviewed such as technical reposts, books, research articles followed by querries as ['sensors AND wearable], ['smart AND devices'], ['healthcare AND technology'], ['infrastructure AND expenditure'], [technology AND public health'], [Pakistan AND developing countries]. The scientific data gathered for this study was taken from the database of ISI Web of Science, and Scopus consisting of 180 peer-reviewed articles out of which 90 were found relevant. Results were filtered based on device technology maturity during the last two years. The analysis was extended on device technology maturity based on its availability in the last two years. Additionally, challenges and barriers in market penetration and correlation with healthcare wearable technology capabilities were identified and addressed.

3 The Key Findings

A. Technology acceptance

Recently, various tools and methods are looked for to quantify healthcare data. Accordingly, the internet of things (IoT) i-e interconnected remote devices in the healthcare sector is expected to grow from \$ 55.55 billion to \$ 188.0 billion by 2024 according to the Global Forecast report (Dahri & Thebo, 2020) at 27.6% annual growth. On a recent note, 76% of healthcare organizations believe that IoT will transform the healthcare industry (Anurina, 2019). As Fig. 1 suggests:

According to WHO (2019) report, global healthcare spending by 2020 is 10% which is the 10% global GDP. Where, 40% of all spending is out-of-pocket i-e, spent by people in middle- or lower-income countries. Likewise, the key market driver is people are getting aware of their health and fitness where smart wearable devices play a significant role (Fritz et al., 2014). Additionally, microelectronic components with low prices are an advantage that optimizes the profitability of the manufacturing and producing devices business making wearable devices by the technology accessible to most people (Kim & Shin, 2015).

Literature research has revealed that development in the fitness, healthcare sector, and security sectors has enhanced the increase in demand for smart wearable devices in developing countries as well. Given the larger population using smartphones favored the usage of wearable technology. These days smartphones have the advanced capability that helps visualize and transfer large data remotely to cloud computers or physicians at data centers. Likewise, smartphones with medical applications are significantly enabling personalized-healthcare system (PHS) that is helped by

Fig. 1 Source: Markets and Markets-Wearable technology market

various embedded sensors in smartphones such as gyroscope, GPS locator, GPRS, 4G systems, and blue-tooth technology with IoT environment is helping to collect patient data, diagnosis of patient health, and cost-effective patient-physician medical relationship (Dahri & Thebo, 2020).

For instance, android wristwatches as medical devices, send patient data such as blood pressure, heartbeat, and blood oxygen saturation, connected with smartphones as medical data collecting and transferring unit, then transfers this data to cloud computers or physicians over 4G or 5G network, where it can be analyzed accordingly. Thus healthcare wearable technology has a great future due to real-time data gathering, visualizing, and continuous patient data monitoring in even geographically remote areas and enabling physicians to alter the patient healthcare services when needed (Karahanoğlu & Erbuğ, 2011).

It is unfortunate that in general, there is no global framework and healthcare professionals are not able to use technology for their medical and investigative techniques (Solangi et al., 2017). Furthermore, in Pakistan,) technology adoption is often viewed negatively. It is also a common observation among healthcare professionals that significant concerns are directed towards acceptance (Mitzner et al., 2010). And effective use of technology was reported by Thiessen et al. (2018) that medical professionals avoided technologic because they feared mass control from management. Since the negative attitude of medical professionals when using technology in healthcare could delay the fruits of the use of IoT in the healthcare system. Similar issues are associated with the future structure of healthcare to adopt MIoT and Innovations, particularly getting doctors and healthcare providers on standby for global uncertain events COVID-19.

Developing countries like Pakistan, where basic healthcare medical is missing and reluctance to use medical technology on large, medically equipped smart wristwatches connected with smartphones. And medical applications such as

Mytabeeb.pk, Findmydoctor. pk, and Ring MD is among the top three healthcare mobile applications used in Pakistan, which may treat the shortcoming in the healthcare system of Pakistan.

Since the majority of healthcare facility equipment is made and licensed for patient care is by developed countries, still, developing countries are forced to import this equipment. While reluctance and lack of technical support to train people at the local level, secure communication, and monitoring smart wearables, limit the permeability of medical technology in developing countries. According to Business Monitor International report (2019), the medical devices market in Pakistan is worth $ 457.1 million and is projected to rise by $537.5 million at 6.2% by 2020. Where U.S medical equipment and services are regarded the best.

B. Challenges to adopt

Data Management, security, and privacy

Wearables generate large amounts of data, which is mainly collected and sent from your smartphone and/or flashcard to the cloud servers for further processing. Edge computing technology is adapted to use data from wearables devices that will analyze only the most important data and release meaningful data from servers, improving patient care and device efficiency (Dimitrov, 2016). Since Medical data from wearables are often saved on manufacturer's servers which have security vulnerabilities (Liu & Sun, 2016). Therefore, wearable devices utilizing wireless communication protocols such a Bluetooth, NFC, Wi-Fi have security systems that can't be trusted enough to protect patients' data from hackers, and data privacy and security are major concerns (Thierer, 2014).

Wearable devices data is not yet available to be fully considered by medical professionals for research or patients for treatment. Results' consistency may be subject to limitations of generalizability. As the majority of data is gathered from non-clinical sensors, in which most cases there are no rigorous tests, experimentation under controlled conditions (Dahri et al., 2019). Moreover, fitness readings wearables for instance are reported to have error margins up to 25% between medical applications and devices raising major reliability issues (Mantua et al., 2016; Piwek et al., 2016; Tana et al., 2017).

4 Technology Affordability

The WHO recommends that countries invest 6% of their GDP to fund healthcare to meet set targets (Basharat, 2017). This is a particularly lofty goal for developing nations. Especially, African and Asians who spend below 5% of their GDP on their healthcare sector (Dahri et al., 2019). According to the UN (2018), rural areas are home to 90% of the global population, with this figure expected to reach its highest point by 2020. Where life expectancy is lower with limited healthcare options, poverty, and lack of transport facilities, while lack of skilled healthcare workers and other factors contribute to poor quality healthcare in rural areas (Strasser Kam & Regalado, 2016). Adding to adversity, skyrocketing healthcare costs, high-priced drugs, and hospital-acquired infections, as well as failure healthcare events can result from ineffective care delivery. Therefore, in rural areas of developing countries such as Pakistan, immediate technological intervention is required.

5 Regulations

1. It is important to structure a strong regulatory framework to validate the healthcare device system as a national asset. In this regard, Federal Regulation Authority (FDA) in the USA has devised guidance to validate software and medical healthcare devices.
2. From a legislation perspective, two categories are identified; A- those technologies that serve general-purpose healthcare improvement and, B- those technologies that serve general-purpose yet specifically address a disease or condition. Though the legislation is a set of standard documented rules and it should be modified for each government. Regretfully, Pakistan lacks any such legislation related to the valuation of wearable medical technology for the healthcare system.

Since the infrastructure of Pakistan's public health sector is dominated by wearable technology imported from abroad. The main factors for the valuation of foreign currencies and imports are two factors that influence the price of transportation, insurance, and costs of wearable medical devices (Jung et al., 2016). Such as the exporting countries may also increase the unitary price making it hard for developing countries to upgrade their healthcare system. Or remote usage could be promoted by insurance companies for health monitoring devices to disease monitoring under disease prevention regulations. Developing countries need to structure strong regulatory frameworks for devices to be considered in the public healthcare system as did FDA in the US.

C. ***Healthcare wearable technology challenges***

Access to healthcare services

The World Health Organization (WHO), has encouraged Pakistani governments to adopt health services. However, these efforts have not succeeded. Corruption, lack of governance, and bureaucratic involvement in healthcare policy making have led the healthcare system of Pakistan to unequal distribution of resources making it inefficient, and lack of access for low-income people (Kurji et al., 2016). For instance, the geographic distribution of qualified medical personnel such as doctors, nurses, and staff, while the majority of availability can be found in major cities, thus is not available for those who are disadvantaged.

6 Human Resource in Health Care

The geographical distribution of qualified medical professionals such as doctors and nurses is critical for most developing countries. specifically in rural areas where communities are often without access to basic and specialized medical care. Care units in rural areas must consider the following: Integration of smartwatches devices for remote healthcare Assessment of qualified medical specialists located in urban areas (Andrade et al., 2015).

7 Inequalities in the Health Care

Different health statuses and coverage of resources for health can lead to differences in different population groups based on their social conditions (Cotlear et al., 2015). Other societal factors like education, age, gender, socio-cultural, income levels, and ethnicity also affect the health system. Specifically, children from rural and poorer families are often the most vulnerable. The most affected are lower socioeconomic groups who often have lower living standards. Such as obesity, is a result of unhealthy lifestyle habits, work conditions, and lifestyle behaviors. These can cause health problems, such as smoking and alcohol abuse, diabetes, heart disease, cancer, and respiratory ailments (Dmytraczenko & Almeida, 2015). According to the WHO maternity mortality report, 94% of the world's maternal mortality rate has been high due to inequalities in healthcare coverage in developing countries.

Accordingly, healthcare wearables can be a great tool for improving a healthy lifestyle. Encouraging healthier lifestyles is an important part of achieving the goals to modify behavioral risk factors in disadvantaged groups. This strategy could help to reduce the health risks and inequalities.

Financing healthcare system

Financing of the healthcare system in developing countries is often illness trigger-based. Such that illness or outbreak of disease directs the focus of government to invest in the healthcare system. Though resources are limited, yet such a strategy is not sustainable.

About 80% of the financial resources in the public sector are provided by the Government of Pakistan with non-development and recurring expenses predominating in these allocations.

About 80% of spending in the public healthcare sector is made by the government (Mohammad et al., 2007). Pakistan government spends about Pkr 250 rupees non-developmental and recurring annually. However, as per Millennium Development Goals, Pakistan needs to increase this spending by 50% for next years to meet set goals which seem dream to achieve. This problem can be addressed shortly by investing in wearable technology and implementing technological integration in the healthcare system to reach set goals.

8 Discussion

Healthcare is a foundational pillar of development and sustainability that influences the social and economic standards for lifestyle in a country. In general, the healthcare system in developing countries is influenced by political decisions that are based on social and economic criteria. Investing in the healthcare system should be the top priority for illness prevention, health promotion by enhancing primary healthcare infrastructure and services, and reducing treatment costs coverage at different levels (Becerra-Posada et al., 2014).

To guarantee high standards of health, it is vital to improving the public's health quality coverage and medical service through both government policies and the commitment of insurance providers. But, to enhance patient recovery, it is crucial to follow up with patients.

Commonly, doctors issue medical orders for their patients who in some cases, skip the doses entirely or don't follow the instructions. This leads to the situation of readmission of patients to the hospital or prolonged recovery. Likewise, it is not favorable for the healthcare system to readmit a patient for a longer period as it increases the operational cost of the healthcare facility (Kripalani et al., 2014). Since tracking and tracing all the data of patients manually is tiring and time-consuming for.

On the other hand, wearables devices can be worn to always monitor all these variables and in real-time, if patients are following the rules and notes from a physician. Healthcare wearables allow for tracking patients' information to make more informed judgments about the patient's health. Innovation solutions are built on technological advancements and social strategies to adopt newer, better devices where integration of public and private sector could enhance better healthcare quality and service. In near future, medical technologies powered by Artificial Intelligence and machine learning will enhance the performance of the healthcare system (Dahri & Thebo, 2020). Where medical professionals will engage only in emergency cases and nurses would be able to address routine tasks more efficiently. This will not only reduce workload among medical professionals but also address the shortage of healthcare resources and inadequate infrastructure.

9 Conclusion

This article discusses current trends and highlights opportunities for improving public health in developing countries. Technology accepted and affordability, data security, and management lead result in both accurate and within the regulatory framework which are key components for the adoption and use of healthcare wearables in developing countries such as Pakistan. The article also revealed that adoption barriers were there.

This study revealed that due to the Implementation of wearables technologies there will be a lot of new information, knowledge, and experience readily available over the coming years for patients, physicians, and healthcare professionals.

By using complementary data, general doctors and specialists will use the technology for a better understanding of diseases and prevention at the early stages of development and progression. Therefore, advancement in data processing software will be necessary to improve data processing for the assessment of heterogeneous data using different devices including devices that are responsible for monitoring medical parameters, behavioral data, and self-monitoring data. Data from wearables will be expected to be integrated into existing medical platforms and shared with different and remote healthcare facilities to improve current treatments. Advancements and integration in sensory technology such as the internet of things (IoT) will improve the result accuracy and reliability. There will be a dire need for collaboration between the private and public sectors to provide input to policymakers in the development of a more integrated infrastructure to collect, secure, manage, and utilize patients' information.

though the cost of medical technology remains a major concern in many developing countries. Yet, technological adoption is better to alternate for quality medical services penetration in remote areas rather than recurring unproductive investment for many years.

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Public Policy, Government Legitimacy, Covid-19 and Public Response: The Case of the Nigerian Government and Populace

Najimdeen Bakare Ayoola

Abstract The Covid-19 pandemic exposed the vulnerability of human scientific and technological advancement. It reinforces the binarity that characterises the architecture of global system. While the pandemic grew in consequence, global response towards it was directly proportional to the threat, particularly from the West. Still, the pandemic unveiled the lacunae in public policy and administration, formulation and implementation with regards to issues of imminent public interest. Without being an exemption, the pandemic had considerable impact on Nigeria, hence the chapter examines the response of the Nigerian government to the Covid-19 pandemic crisis. It treats the response through the lens of public policy and administration and governance. It equally addresses the question of how effective was the government policy and what was the corresponding response from the people and explores whether the corresponding relations demonstrate trust between the state and people, strengthen government's legitimacy or widen the gap of understanding and trust. Lastly, the chapter concludes that effective public policy amidst crisis such as Covid-19, requires a strong coordination of the federal and state government and the civil society.

1 Introduction

Effective public administration, especially amidst a pandemic like the Covid-19 can be impactful on the legitimacy of government. The manner with which all levels of government respond to public concern through an effective decision-making and implementation process contribute to how government performance in measured (John, 2006). This chapter premised the performance of the Nigerian government during the apex of the Covid-19, on description that says "public policy and administration is what government does and how it does it" (Thomas et al., 2017). Yet, policy formulation is not as important as the effectiveness and degree of efficiency put into

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it, because public policy and administration is making the activities of government more efficient (Thomas et al., 2017, 3).

Combatting the menaces posed by the pandemic was as global as the globalised proclivity of the pandemic itself. At the start of the pandemic, governments the world over, were grappling with understanding the nature and trajectory of pandemic, in that, such viral health issue with similar global ramifications was last experienced during the Spanish flu, in the twentieth century. Interestingly, the relations between the attendant consequences of the Covid-19 pandemic and global response were directly proportional. As the pandemic grew in consequence, so was the policy and race towards emasculating the virus, if not find an end to it. The race engendered the development of multiple vaccines, even though the world sloped towards weaponizing the vaccine as tool of diplomacy and geopolitics. While the global north led the race and as such demonstrated its core character, the global south remained peripherally dependent on the north.

The pandemic reinforced the need for a welfare state, that is, the imperative that governments become more responsible to take a larger role for the health and well-being of citizens. In fact, that equally underscores the whole notion of human security as opined by the United Nations Trust Fund for Human Security "human security is an approach to assist Member States in identifying and addressing widespread and cross-cutting challenges to the survival, livelihood and dignity of their people." (UNTFHS, nd).

As aforesaid, the Covid-19 has further exposed the lacunae in public policy formulation and implementation and public administration with regards to issues of imminent public interest. It unveils the dichotomous policy approach towards resolving existential threat both at the public and foreign policy level. It equally exposed the carelessness of global management and the dearth of uniformity in the approaches of the powerful nations (US, China, Russia and EU) towards of the crisis (Roloff, 2020). It instead laid bare the securitisation of health-related disaster and preference for geopolitical struggle over global security.

Being the most populous black nation, having the largest market-economy, sitting on one of the largest oil reserves in the world, endowed with numerous natural resources (Cochrane & Struthers, 1983; Frynas & Manuel, 2007; Nigeria-OPEC, nd), a bourgeoning youth population of around seventy percent (Reed & Mberu, 2014) and a phenomenal vibrant multicultural and multireligious societies (Adebanwi, 2019; Obono, 2003), Nigeria arguably has vista of space for both academic and policy related research. Without being an exemption, the country has been grappling with the menace of Covid-19 pandemic that caused an existential threat to the world at large. However, grappling with viral diseases has never been novel to Nigeria. The Nigerian government did a commendable job and outperformed many countries in sub-Saharan region, at the outbreak of the Ebola (Otu, et al., 2018). But could same be true for the Covid-19 pandemic. To address this concern, the chapter examines the response of the Nigerian government to the Covid-19 pandemic crisis. It treats the response through the lens of public policy and administration and governance. It asks what public policy factors and approaches explain the Nigerian Covid-19 policy. It equally addresses the question of how effective was the government policy and what was the corresponding response from the people and explore whether the corresponding relations demonstrate trust between the state and people—or widens the gap of understanding and trust.

Approaches to Public policy

With increasing urbanisation at a global level, public policy and administration is growingly more relevant. The complexity and multifaceted urban cities require the provision of public services, hence the importance of public policy not just to make the decision, but to engineer the administrative structures through which the decision becomes a manifest reality. This resonates with scholars who strictly see public policy as primarily an administrative business or at best from an institutionalist lens (John, 2001). Thinkers in this realm hold the view that formal (institutional) arrangements affect and promote good coordination of public decision (John, 2001, p 42).

Over the years, the subject of public policy has generated several theoretical and analytical prisms. The top-down approach (Abas, 2019; Matland, 1995; Schofield, 2001) considers policy making as a linear process, where constituent units make sense and implement policy as given to them from the top. In contrast, the bottom-up approach focuses on the target group and service deliverers (Cerna, 2013), it sees policy as integrative process (Matland, 1995), it takes into account the behavioral aspect of implementation, particularly the local implementers of policy (Schofield, 2001).

A combination of the two approaches produced what some scholars generally termed as the interest group, stakeholder approach, or the group and network approaches (Abas, 2019; John, 2001; Paudel, 2009). This approach of public policy is grounded in associational pressure—based on their associational need; social groups mount pressure to influence public policy. This approach agrees with the behaviourist school, as to how important is interpersonal interactions between the participants in the policy making and actors who are not necessarily in the corridor of decision making.

Meanwhile, socio-economic approach stresses the primacy of the economic and social system in a country as a determinant factor both on policymakers and the trajectory of policy itself. It is an approach that treats public policy as a reflection of stability and change within the system, through a coordinated institutional approach (Amacher, Tollison, & Willett, 1976; John, 2006).

Over the years, few studies of policy formulation focus on impact assessment of policy (Lyon, 1990) and 'policy advisory system'—feedback, which provide decision-makers, the mechanism to make short, medium and long policy. Such model/approach is based on the proximity of policymakers and the government—invariably generating an integrated and coordinated policy, which may be either partisan 'political' or administratively 'technical' in nature (Craft & Howlett, 2012).

Broadly speaking, the contextual nature of public policy and its fixation to a given locale, prompts a general perception that public policy is factored by the interplay of multiple localised issues, needs, concerns and politics. Inasmuch as such understanding of public is factual and incontestable, yet, it does not delineate the entire picture. Other than localised actors and factors; external environment, entities, actors, and factors also engender the formulation of public policy (Craft & Howlett, 2012; Sorush, 2017). External factors and determinants come in two forms, one is the external environment, outside the corridor of government or policy making, two, is the foreign/external actors and determinants, whose influence shape the making of particular public policy at given time span. For instance, the role of international institutions (IMF, WB) international intergovernmental organization (IGO—UN, WTO) or international non-governmental organisations (ICRC, Transparency International, Human Rights Watch, Amnesty International) have instrumentally influence public policy in different countries. Although Hwang and Gray (1991) argue that "States are responsive to external demands" but nonetheless remain autonomous to decide whether or not to succumb to external influence. Suggesting that state can pursue multiple goals simultaneously, even when challenged by a looming existential threat, such as the Covid-19 pandemic. External factors may also stem from the developments or happenings at the global level. For instance, long before environmental policy became an integral aspect of public policy "government seldom thought of it as a general object of public policy" (Caldwell 1963, p. 154). Environmental policy gained global traction following the rise of the global environmentalist movement that widened the debate of environmental protection versus economic development (Antle & Heidebrink, 1995; Dasgupta, 1978; Feiock & Stream, 2001; Kaiser & Meyer, 2016).

Like every other human endeavour, policy formation and administration is not insulated from some form and degree of challenges. One of the challenges of public policy and administration is making rational choice and the utility of limited resources to cater for competing goals and objectives as Simeon (1976, p. 550) argues "policy making is not, by and large, simply a matter of problem-solving … it is rather a matter of choice in which resources are limited and in which goals and objectives differ and cannot easily be weighed against each other."

While all these approaches may have played some role, it suffices to say that environmental and external factors influenced the global policy surrounding the Covid-19, therefore the following discussion is anchored on external factor—as public approach and its intersection with good governance. In this way, the discussion will be answering what public policy factors and approaches explain the Nigerian Covid-19 policy?

The Nigerian Covid-19 Policy Response

Firstly, public policy is generally located within the local/domestic space, to address concerns of that space, as demanded by the actors and factors of same space. Meanwhile, the interconnectedness of modern world proved that the determinants of public policy is far from being limited by internal actors and factors. In today's world, the process of policy formulation is influenced by factors external to the process itself. Governments are instituted to improve the welfare of members of society—to protect the sovereign integrity of the state, ensure and protect public health, provide for the common defence of the state, improve public safety, etc. (Sabatier, 1991, p. 145). For instance, the growing threat of kinetic and non-traditional insecurity, such as cyber-attack, cybercrime, and cyber warfare, emanating outside the Nigeran border, against the country's sovereign integrity, prompted the establishment of Cyber Warfare School in Abuja, by the Nigerian Army (Kilete, 2021). This is also true for the Covid-19 policy, which was far from being the usual and conventional policy bore out of public discourse. It evidently stems from external environment and actors. According to Dan-Nwafor et al. (2020) "Nigeria's epidemic response is carried out in the context of a fragile and under-resourced existing health delivery system, and complicated by economic, political, social, and security issues throughout the country. Yet, confronting epidemics is not new to Nigeria." However, this by no means suggest the Nigerian government has no preparedness for epidemics or pandemic. In fact, the nation had become more sensitised as a result of the 2014 Ebola epidemic. It has a functional structure in place, in the shape of Nigeria Centre for Disease Control (NCDC). With the Covid-19, the federal government of Nigeria was forced to enhance the diagnostic and surveillance capacity of NCDC in the country. Thus, the pressure of the Covid-19, spurred and de-hibernated a hibernated policy. Analysing the Nigerian government's preparedness and response towards the pandemic, Adesanya (2020) characterised the response as 'wait and see' lax in approach, and devoid of alacrity, the response became somewhat meaningful upon the involvement of the private sector.

In addition, the fact that international actors such as the WHO and IMF were concerned about the impacts of the virus and how to rescue states, as a recipient of IMF Covid-response fund and WHO advices, the Nigerian government had to formulate policy to that effect.

Public policy, good governance and Covid-19 response

Secondly, public policy focuses on setting goals and objective, while public administration is the implementation of the policy (Thomas et al., 2017, 1), a plausible argument is that an effective and efficient public policy and administration translates into good governance, as good governance suggests "the process of decision making and the process by which decisions are implemented" (Sheng, nd), in the realm of public policy. Public policy is soulless without the government—one of the players and most important actor in governance, especially when it comes to policy formulation and implementation. Governance as it stands, can either be bad or good. Whereas, bad governance indicates bad government, plagued by maladministration, irregularity, corruption and unpragmatic policies, in contrast, good governance is predicated on "participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law" (Sheng, nd) (Fig. 1).

The level of accountability, transparency, responsiveness and effectiveness and efficiency of the Nigerian government with regards to Covid-19 is debatable. This however is not an insinuation that the government has nothing to be appreciated. In fact, its monetary-cum-loan policy during the peak of the pandemic must be echoed. Eranga (2020) argues that "as a way of cushioning the effect of the lockdown, the Federal Government of Nigeria rolled out the following palliative measures for targeted groups: three months interest holidays for those holding Tradermoni,

Fig. 1 From https://www.unescap.org/sites/default/files/good-governance.pdf[1]

Marketmoni, and Farmermoni loans issued by the Bank of Industry, Bank of Agriculture, and the Nigeria Export and Import Bank." Similarly, the Central Bank of Nigeria (CBN) launched a portal for Micro Small and Medium Enterprises (SMEs) and households affected by COVID-19 to access up to $70,000. The question remains how impactful were these policy measures.

Effort such as these were reported to have been punctuated by bureaucratic bottleneck and trust deficit (Dibie, 2021), discredited as business as usual, where palliative is distributed only amongst cronies and "distribution of whatever that may have been made available for that purpose had been politicized" (Eranga, 2020). Highlighting the impact of the response, Human Rights Watch shows a disconnect and lack of coordination between the federal and state governments (Human Rights Watch, 2021). From a policy perspective, a meaningful impact of the Covid-19 response would have been marked, had the federal and state agencies worked in coordination with community-based organizations to establish rights-based eligibility criteria for social assistance measures (Human Rights Watch, 2021). Secondly, the laxity in government approach demonstrates the lacunae in governance. While government represents the formal actor, informal actors such as the civil society is as important as the former in ensuring the aforesaid eight characteristics of good governance.

In furtherance to the nexus between governance and government policy vis-à-vis the Covid-19 response. It is imperative to note that as a recipient of the International Monetary Fund (IMF) loan, meant to help countries cope with the socio-economic fallout of the Covid-19 pandemic, as at of April 2020, Nigeria received US$3.4 billion in emergency financial assistance, leading the country to announce a 2.3 trillion Naira (US$6 billion) stimulus to address the pandemic (Transparency International, 2021). If the goal of any public policy and administration is the resolution of problems and alleviation of public concerns, it is therefore imperative for target audience should at the barest minimum consider such government action as people-oriented. According to a report, the structure and apparatus created for the implementation of the emergency financial assistance was not merely cumbersome, it was characterised by gaps in the implementation of transparency commitments agreed between the Nigerian government and IMF.

[1] https://www.unescap.org/sites/default/files/good-governance.pdf.

> An IMF Article IV report highlighted this weakness and that users have found it difficult to access the expenditure information that is being published. Several links under the COVID-19 reports tab on opentreasury.gov.ng, including a link to the COVID-19 Comprehensive Financial Report, appear broken (Transparency International, 2021).

When policy goes wrong: Lockdown and Palliative Saga

Thirdly, proactive and pragmatic response to matters of public interest presumably underscores the essentiality of the state. At the global level, the Covid-19 pandemic forced a global shutdown, virtually all countries employed and implemented varied degree and dimensions of lockdown, as measures to confront the intimidating challenges constituted by the pandemic.

Inasmuch as the pandemic forced a new form of social contract, it equally tested the veracity of the exiting forms of social contract between the citizens and their respective governments. More precisely, it was an experiment of the level of trust between state and society, both at individual and collective level.

There were multiple responses to the pandemic and lockdown policy, was a popular measure, employed and implemented geared at curtailing public mobility, locally and internationally, as transportation means were halted. The policy prohibited outdoor assemblies and even prevented social intercourses amongst relatives. It also proscribed shops, restaurant and recreational spots from operations. Though in some countries, rather than implementing a total lockdown, the government initiated a smart-lockdown (Hashim, 2020; Wang et al., 2021; The News, 2020). The multiple responses suggest that even though the pandemic is characteristically global in nature, requiring a global response, uniformity in response may not be plausible, instead, contingent to local necessities and ground realities. Interestingly, for most governments, the lockdown was a countermeasure against the proliferation of the virus, in contrast, the People in general and business community in particular, considered the measured as multiplier of boredom, worries, restlessness and fatigue and aggravated the implicit misgiving and mistrust for the state. Societies across the globe reacted differently to the lockdown, it polarised and further exposed social lacunes. In some part of the world, it was construe as a breach of human rights (DW, 2021; Tzevelekos, & Dzehtsiarou, 2020), without consideration for its utilitarian underpinnings and at the same time, a test of good governance (Karnitschnig, 2020).

Unlike in Europe and elsewhere in the advance societies, where the governments earmarked and supported their citizens with relief fund, same was partially true for many parts of the African continent. Taking Nigeria as a reference case, there was varied degree of lockdown measure employed by the federal and state governments. Salisu et al. (2021) identified the nature of lockdown measures experienced across the country, namely, total lockdown, partial lockdown, curfew and interstate restriction. Even when the measures were direct public policy tactics to address the spread of the pandemic, the attendant consequences on the masses were socio-economically un-laudable. The lockdown decreased the accessibility to food, especially for many households, whose sustenance depend on daily income. Meanwhile, government palliatives meant to alleviate the hardship of the people were punctuated by irregularity and challenge (Eranga, 2020) and thereby exposed the lack of good governance and pragmatic public policy especially during crisis. The attendant lamentation and disgruntlement of the lockdown paved way for public disobedience, as anxious and most affected poor masses accused the government of been unconcerned of their travails and politicising the distribution of palliatives (Olawoyin, 2021). Resultantly, the aggrieved masses were forced to loot several government-owned warehouses for eatable palliative (BBC Obiezu, 2020; Pidgin, 2020). One would argue that such incidents depicted a laxity in policy implementation, accentuated the lack of trust between the people and the state, exacerbated food security amidst growing poverty and crisis, and equally delineates the carelessness of the state to properly handle the larger issue of human security. Such incidents may not be seen as an abnormal and isolated occurrence, but a socio-economic fallout and continuity that underscore the nexus of corruption and public policy in the context of Nigeria (Osakede, et al., 2015; Osimen et al., 2013; Yusuf et al., 2014). As Abu and Staniewski (2019) argue that corruption in Nigeria is not a new normal, but a perennial disease and a normalised integral part of the Nigerian system. Given the tensity and exigency of the situation, the provision of palliatives went beyond the sole responsibility of the state, hence, combined with private distribution of palliatives, "many Nigerian philanthropists, billionaires and corporate bodies have generously donated funds to this effect to the Nigerian government which is propitious and patriotic" (Ariche, Ikegbu & Amalu, 2021) but the systemic corruption, irregularity in policy implementation, and inadequate management and coordination makes a lofty effort to lose its essence of the common good, and as such the "palliative care relief services could not achieve their intended goals due to the observed logistics challenges" (Salisu, et al., 2021).

Corresponding response of Nigerians

When viewed from the prism of system theory approach, public policy process can be situated within the open-system approach (Katz & Kahn, 1966). Within the broad spectrum of system theory, open-systems interact with their environments and generally correspond to Boulding's scale of system complexity (Ashmos & Huber, 1987, p. 608). This system approach exchange information, energy or material with their environment ….social systems are inherently open systems (Kast & Rosenzweig, 1972). This approach employs the input, throughput, output and feedback processes. According to Saylor academy (2012) "The systems then process the input internally, which is called throughput, and release outputs into the environment in an attempt to restore equilibrium to the environment. The system then seeks feedback to determine if the output was effective in restoring equilibrium" Premised on this prism, public policy cannot be labelled a one-way process, solely involving the policy makers, instead, a two ways processes, involving the policymakers and those whom the policy is made for. Besides, the strength of a policy is measured by the degree of receptivity, satisfaction, and trust amongst those whom it was formulated for (Christensen & Lægreid, 2005; Kumagai & Federica, 2020; OECD, 2017). To this end, the following discussion equates people's response as the feedback, upon which the corresponding response of the people towards the Covid-19 policy is measured and whether the corresponding relations demonstrate trust or it widens the gap of understanding between the state and people.

New social contract/discipline and indiscipline/test of legitimacy

Containing the spread of the Covid-19 virus necessitates drastic and stringent measures. The Chinese government demonstrated this more than any other country. But the success of such measures was contingent on a new form of social contract, rooted in individual and collective discipline. The enduring discipline of the Chinese public ensured the success of the strict—disciplinary Covid-19 policy by the Chinese government. The corresponding response of the Chinese public restored equilibrium to the society and depicts the level of trust between society and state. The Chinese government was effective in convincing the pubic on both the rationale and rationality for such disciplinary measures. The convergence of interest, mutual understanding, and a strong patriotism can turn a disciplinary policy into a pleasant outcome as China came out of the Covid pandemic much quicker than the rest of the world (Lee Myers, et al., 2021).

In Nigeria, the government also employed lockdown as precautionary and restrictive mechanism—a form of discipline. The lockdown rehearsed how the subordinate bodies can be disciplined to obedience, although such discipline may not always be physical, but carries both physiological and psychological ramifications. The immobility caused by the lockdown and the attendant harsh realities, exposed the endurance and perseverance level of many Nigerians, who were pressured to violate curfews and loot for palliative. This corresponding reaction failed to cause harsh government response, understandably, the situation will most plausibly be different in a non-Covid climate. As aforesaid, the politisation of palliatives and the harsh reality of the lockdown failed to galvanise public trust for the government, instead it correspondingly portrayed trust deficit and a lack of understanding between the state and people. On the issue of trust and mistrust, it is imperative to say at this juncture that while there is no serious study that statistically quantifies the attendant mistrust between the citizenry and the Nigerian government, on account of the Covid-19 response, yet, there are studies and reports that descriptively delineate the misgiving and mistrust (Agbedo, et al., 2020; Amzat, et al., 2020; Olawoyin, 2021). Besides, unlike in China, the incongruity between the state and society undermined state's legitimacy. The response was a litmus test of good governance and legitimacy of the government. Beyond the shore of Nigeria, there is a common understanding, the recent Covid-19 pandemic and its attendant global ramifications underscores the perennial society-state tussle, it demonstrates how crisis such as the Covid-19 can instrumentally challenge existing social contract, paved way for a new one, and as a litmus test of good governance and legitimacy of a government.

Information Monopoly

In today's globalised world, characterised by technological advancement and the dawn of the new media—social media, information monopoly is far from being a statist venture. The liberalisation, democratisation, and proliferation of information transmission expose global citizenry to the overload of multiple information. Combined with this, citizens are more than ever closer and proactive towards their governments, in terms of informal participation in policymaking (informal input), contributing to good governance, by highlighting the sensitivity for a responsible—responsive, transparent and accountable government, keeping a check on state policy, resisting the grand narrative of state, and making governments more sensitive about their legitimacies. Such description is nevertheless subject to the nature of information governance operational in a country. The containment of social disorder and maintenance of social contract between the Chinese government and the Chinese public may not be disassociated from the kind, scope, nature, and level of information governance in China. This may not be true for Nigeria, where the government does not maintain unparalleled monopoly over production and consumption of information.

Amidst a tensed socio-political and economic climate, punctuated by the EndSARs movement, a movement demanding the end to police brutality, especially between the special police unit—Anti-Robbery Squad—SARS and the Nigerian youth (Adetayo, 2021). Prior to the latter, the major strength of the Nigeria populace—youth were already at loggerheads with the government over many issues, which include but not limited to the demand for an end to youth unemployment, respect for human rights, an efficient political system—devoid of corruption which has largely truncated and disrupted the trajectory of development in country, and above all the assurance for human security. Long before the EndSARs movement, Nigerians, particularly the youth were irked by the statement that purportedly labelling them as lazy youth (Akwagyiram, 2018). For the youth, such statement does not only contradict reality, it also fails to understand the endurance of being a youth in Nigeria (Akwagyiram, 2018). During the EndSARs movement, the new media—social media joined the list of abrasions between the youth and government. The EndSARs movement brought forth new government policies.

One, information policy tailored at managing and monitoring information dissemination on the cyber sphere. The policy was meant to instil order on the cyber sphere, not as a tool to creating public disorder, troubling the state, and fomenting anti-state action. During the EndSARs movement, the cyber sphere reportedly empowered the youth, whose confrontational actions practically challenged state writ and undermined governance (Ruppel & Arowobusoye, 2020). Two, the birth of a financial policy "that orders all financial institutions to stop facilitating crypto transactions" (Premium Times, 2021). The ban on the virtual currency stems from the government argument that connects cryptocurrency with money laundering and the sponsorship of anti-state policy (Akinwotu, 2021; Salau, 2021).

Similar to the rest of world, the Nigerian had to grapple and respond to the Covid-19 pandemic. The responses were multi-layered, yet the ones that attracted government notice emerged amongst the educated populace, especially the internet savvy and people who do not necessarily depend on state narratives and information, they questioned the veracity of the Covid-19. Arguably, the proliferation of information on the internet exposed the limit of government to contain information and misinformation. In the age of the social media and post-truth, information is not merely civilianized, but also escapes the monopoly of the state. With regards to the Covid-19 pandemic, recent happenings in Nigeria and around the world, delineates resistance, hesitancy and the pain, governments have to endure, to getting their public immunized, particularly those who subscribed to the view that states are part of the bigger Covid-19 conspiracy (Aljazeera, 2021; Crawford, 2020; Gu, et al., 2021; Zia ur-Rehman & Schmall, 2020). Similarly, as a lead user of the internet in Africa (Johnson, 2021; Ogbo, et al., 2021; Silver & Johnson, 2018), sizeable Nigerians seek alternative source of information, such as the social media outlet. The reliance on the social media is increasingly challenging government media outlet (Apuke, & Omar, 2021).

Using the Covid-19 as a reference point, the vast majority of people having access to the internet were not merely waylaid with misinformation, but such easily digested misinformation becomes a jeopardy to government policy, geared at curbing the spread and reducing the risk of the virus through vaccination (Ekezie & Bosah, 2021). In furtherance to the intersection of public policy and the impact of the social media, Obi-Ani et al. (2020) avows that the "Social Media outlets cannot be overemphasized with recourse to information dissemination. These platforms have been abused as people hide under its anonymity to spread fake messages and instigate panic amongst members of the general public."

Conclusion

A proactive public policy explains the response of Nigerian government during the Ebola outbreak. Same was expected amidst the Covid-19 pandemic. The chapter demonstrate the non-unitary approach of public policy, it shows the role of external factors in shaping domestic policy. It also underscores why an impact assessment of policy, with regards to short-, medium- and long-term assessment should be paramount for any serious-minded decision maker, wanting to measure not just the cost–benefit analysis of a decision, but how to transform data gathered from the policy outcome, into better policymaking for posterity. This is evidently true for Nigeria where the policy outcome vis-à-vis the Covid-19 exposed the lacunae in policy coordination and implementation. The Covid-19 response shows the lack of a strong coordination of the federal and state government and the civil society. Therefore, an impact assessment is certainly imperative to bridge the exposed gap between the federal and state government. Similarly, as was the case in China, the laxity in government approach demonstrates the lacunae in governance, the Nigerian government could not galvanise similar patriotism as was the case in China or elsewhere. Interesting, the pre-Covid and Covid response by the citizenry underpinned the role of the social media in shaping stringent public policy and how the new media can be a litmus test for government's legitimacy. It is indeed imperative that the Nigerian government should take stock of where it has done better and failed during the pandemic, it performance during the Ebola outbreak can always be repeated and as preparedness for future related health issues.

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The Public Financial Management in Context of New Global Environment—A Case of Pakistan

Shabbir Ahmed

Abstract The Covid-19 pandemic has created countless impacts on different economies and brought down the global output by 3% in 2020. The new environment also created an impact on the economy such as Pakistan's economy faced a negative growth rate in the initial phase of the pandemic. Similarly, the implementation of the lockdown has slowed down the aggregate economic activities like the collection of total revenues declined by around 14% in 2020. In addition to the economic situation, the government of Pakistan faced two main challenges i.e. stabilization of the overall economy and protection of the inclusive segment of the population from the shock of the pandemic. The objective of this chapter is to highlight the impact of a pandemic on fiscal performance especially in the context of revenues and expenditures and the overall progress of the economy in the era of Covid-19. The chapter also compared pre and post-pandemic debt to GDP ratios with different economies however; the main theme of this study is to discuss the fiscal strategies of the existing government that mitigate the impact of the pandemic on the economy. The existing government came into power in 2018 and already faced economic challenges like the low tax to GDP ratio and high fiscal deficit. In addition to this, the federal government distributed 57.5% of resources to the sub-national governments while only 10% of taxes are collected by sub-national governments in the country. The federal government is already taking many initiatives to increase the tax revenues through different schemes such as Benami transaction rules, etc. This chapter of the book also highlights that after the Covid-19, the government has dramatically shifted the directions of the economic policies for instance; the federal government announced the fiscal package of Rs. 1.2 trillion to overcome the negative impact of the pandemic. Similarly, other financial institutions like the State Bank of Pakistan and the Federal Board of Revenue also announced special incentive packages for construction and business-related activities in the country. The study suggests that the government may enhance the tax base and decline the tax rate.

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Keywords Lockdown · Fiscal packages · Intergovernmental fiscal transfers · Public debt and tax to GDP ratio, ect.

1 Introduction

Pakistan is a federal state that comprises four provincial governments i.e. Punjab, Sindh Khyber Pakhtunkhwa (KP), and Balochistan, and Islamabad is the federal capital with the Federal Administrative Tribal Areas (FATA). In 1947, only 30 million residents were living in the country with a per-capita income of US $100. According to the latest population census, conducted in 2017, the total population reached 207.77 million with per capita income stands at US $1542 in 2021. However, only 27.6% of the labour force is engaged with the formal sector and the remaining 72.4% is employed in the informal sector of the economy. (LFS, 2018–19).

In the 50's, the 50% of the gross domestic product (GDP) was coming from the agriculture sector. In contrast to this, in the existing economy, the industrial sector contributes 60% to the GDP. However, the agriculture sector contributes only 20% to the national output, similar share also contributes to the industries in the output. In addition to the composition of GDP, the real GDP growth reached at 9% in 2005, due to the inflow of foreign direct investment and financial supports from different countries. While in 2020 the GDP declined by -0.4% due to the Coivd-19 pandemic.

A far as the dynamics of provincial governments are concerned, more than 50% of the population belongs from the Punjab province which contributes half of the national income. Sindh is the second largest province as its population share is 23% and contributes 30% to the national GDP. Sindh is the richest province in terms of revenue generation as it contributes almost 60% in national revenues and its per capita income is 22% higher than the national per capita income. The KP province contributes around 14% to the national output and a similar share in the population. The Balochistan province comprises more than 50% of the geographical areas of the country however, it contributes only 5% to the national GDP (Pasha, 2018).

In Pakistan the federal government i.e. Pakistan Tehreek-e-Insaaf (PTI) came into power in 2018, while in 2022, Pakistan Democratic Movement (PDM) has replaced the PTI government through no confidence motion. The PTI's government has already taken multiple reforms in different directions of the economy. However, in 2020, the Covid-19 pandemic created a devastating impact on the performance of the economy and mainly hit the industry and the service sectors of the economy. In the initial stage of the pandemic, the government of Pakistan (GOP) faced different challenges which include protecting the poor and inclusive segment of society from the negative impact of the pandemic and taking the quick initiatives that support the fast recovery of the economy. The theme of this chapter mainly focuses on the impact of a pandemic on the economic performance of Pakistan specifically on the revenues and expenditures side of the economy. This study discusses the directions of the economic policies that help to mitigate the negative shock on the economy. At the end of the study, the chapter focuses on the major fiscal initiatives taken by the existing government in Pakistan.

The chapter of the book is organized as follows: Sect. 2 focuses on the impact of Covid-19 on economic performance. Section 3 discusses the fiscal stimulus packages announced by the federal government in Pakistan; Sect. 4 highlights the overview of the financial management system in the country while, Sect. 5 discuss the intergovernmental fiscal relation in the country, Sect. 6 describes the brief discussion on the public financial management reform in the context of the current government in the country, the last section concludes the chapter.

2 Impact of Covid-19 on Pakistan Economy

2.1 Impact of Covid -19 on Economic Performance

The economic impact of the Covid-19 pandemic depends on the intensity of the virus and the response of the government through the financial supports of the business sectors and the economy. In March 2020 the Covid-19 cases reporting in Pakistan. The GOP implemented the lockdown in the first wave of Covid-19 between April to July 2020. The lockdown created a devastating impact on the performance of the economy and mainly hit the industry and service sectors with declined the magnitude of growth by –2.64–0.59% respectively. However, during that period the overall GDP growth declined by –0.47%. Before the pandemic crisis, the economy of Pakistan experienced negative growth in the early 50's.

The government has taken major initiatives to mitigate the impact of the pandemic on the aggregate output which is also reflected in the overall performance of the economy. In the year 2021, the economy reflects the V-Shaped recovery in the growth pattern as discussed in Fig. 1. In addition to this, in the existing year, the growth

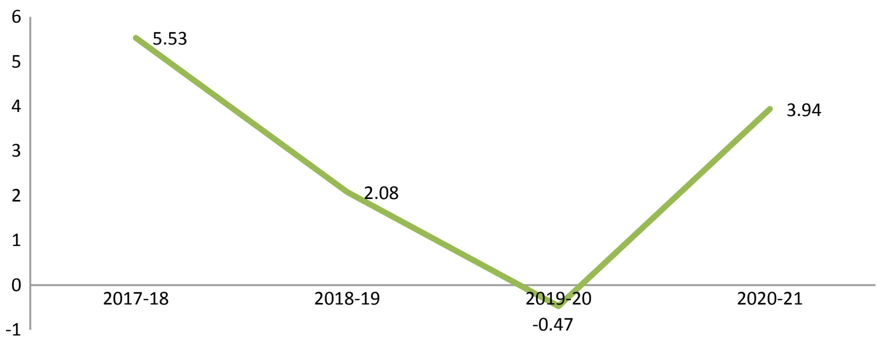

Fig. 1 Economic performance during Covid-19 pandemic. *Source* Pakistan Bureau of Statistics

reached 3.94% which is not only substantially higher than the previous two years of the existing government but also above the targeted growth rate. i.e. 2.1% for the year 2021.

2.2 Impact of Covid-19 on Fiscal Performance

The pandemic has changed the priorities of public expenditure and kept the upward pressure on the current expenditures in the economy. In 2019, the current expenditures stood at 18.7% of GDP while in 2020, they reached 20.5% of GDP. While the development expenditures continuously decreased after the pandemic and reached 2.9% of GDP. In a yearly growth rate, the total expenditure grew by more than 20% in the past two years. Figure 2 reveals the fiscal performance of the economy in the context of the pandemic crisis. In absolute terms, tax collection increased from Rs. 4.4 trillion to Rs. 4.74 trillion between 2019 and 2021. However, the tax to GDP ratio decreased from 12.9 to 11.4% of the GDP during the pandemic crisis. The overall fiscal deficit increased from 6.5 to 9% of GDP.

2.3 Impact of Covid-19 on Well-Being of Peoples

The Covid-19 pandemic has also created an impact on the well-being of the people. According to the latest survey conducted by the Pakistan Bureau of Statistics,[1] almost half of the country's population faced the deduction or loss in monthly earnings due to the implementation of the lockdown. Around 60% of households belong to KP

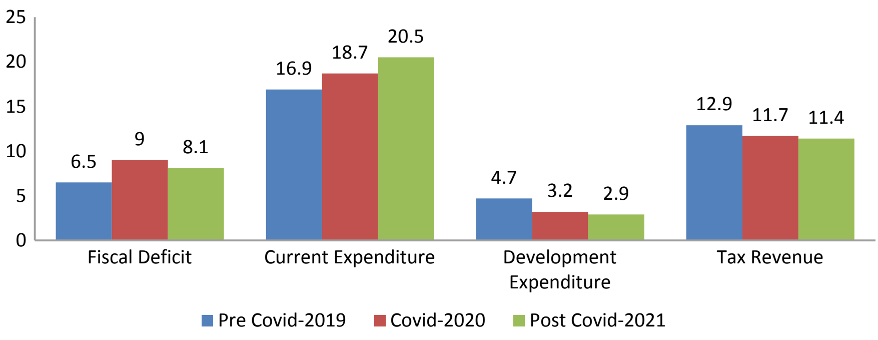

Fig. 2 Pre and Post Covid-19 Fiscal Performance (as% of GDP)

[1] Special survey for evaluating of socio-economics impact of Covid-19 on well-being of people conducted by Paksitan bureau of Statistics in 2020.

and Sindh provinces while the 50% belong to Punjab and Balochistan. The lockdown mainly disturbed business activities in manufacturing, construction, transport & storage, wholesale, and retail trade-related sectors. In the first wave of the pandemic, more than 50% of the population cut the non-food expenditures and sold property or used their savings (PBS, 2020). The GOP has taken the initiative to mitigate the impact of the pandemic on the inclusive segment of the population. The next section of the chapter discusses the fiscal stimulus packages that helped the economy for the V-shape recovery after the pandemic crisis.

3 Pakistan Fiscal Stimulus Package

Before Covid-19, the economy was moving from stabilization to growth due to multiple policy measures that have been taken by the new government in 2018. However, the pandemic has changed the direction of the reforms of the economy. At the initial stage, the government developed a comprehensive reform plan to mitigate the economic impact of the pandemic. The economic plan is comprised of fiscal stimulus packages based on targeted and unconditional transfers. The details of the package are highlighted in Table 1. The federal government has allocated Rs. 480 billion to provide relief to the citizens which mainly focuses on the daily wage workers through Ehssas program, vulnerable families and panagah, farmers, utility stores, power and gas sectors, etc. To resume the business activities in the economy, the government allocated Rs. 570 billion for subsidies on petrol and diesel, exporters, SMEs, and the agriculture sector. Moreover, the government allocated Rs. 190 billion for National Disaster Management Authority, and tax relief on food, health, and medical equipment etc. Overall the government allocated Rs. 1240 billion as a fiscal stimulus package to support the aggregate economic activity during the pandemic.

In parallel to the federal government, the sub-national governments have also taken relief measures to overcome the negative impact of the pandemic. At the sub-national level, the Punjab province announced a tax relief package of Rs. 18 billion and cash grant programs of Rs. 10 billion to low-income households. Similarly, the Sindh government also announced cash grants and a ration distribution program of Rs. 1.5 billion for low-income households. Moreover, in the budget 2021, the

Table 1 Fiscal stimulus packages after Covid-19 pandemic

S.no	Heads	Rs in Billion
1	Emergency response	190
2	Relief to citizens	570
3	Supports to business and economy	480
	Total	**1240**

Source Economic survey of Pakistan, 2020–21 provincial governments increase the budget allocation for the health sectors and the social protection-related programs.

The impact of this fiscal stimulus package created a positive impact on the overall performance of the economy in 2021. The economic output reflects the growth of 2.4% which is also the highest in the tenure of the existing government. In addition, the economy reflects the V-shaped recovery in the fiscal year 2021 as discussed earlier (policy response on Covid-19).[2]

3.1 Pakistani's Financial Institution Initiatives During Pandemic Crisis

In addition to the federal and provincial government fiscal responses on the pandemic, the State Bank of Pakistan (SBP) has also extended the federal government packages through its monetary and financial related packages, Firstly the SBP cut the policy rate by a cumulative 625 basis points to 7.0% since March 2020. Secondly, in the same year, the SBP expanded the existing refinancing facilities for the health sector specifically related to the purchase of Covid-19-related equipment, manufacturing of plants, and incentivize businesses with an amount of Rs. 690 billion till March 2021. Thirdly, the SBP also offered relief in the regulatory measures as it relaxed the debt burden ratio for consumer loans from 50 to 60%, etc.

To combat the economic impacts of the crisis, the federal board of revenue (FBR) has taken various relief measures. In April 2020, FBR announced an amendment in the tax law ordinance for providing relief to the construction sector. In addition, the FBR also adjusted refunds of Rs. 253 billion in the first ten months of the year 2021. The other relief includes exemption of sales tax, income tax, and customs duty to the health-related medical equipment. These initiatives helped the business sector to operate smoothly.

3.2 Global Fiscal Packages During Covid-19 Pandemic

The distortion in the economy due to the pandemic created a negative shock on the aggregate output level such as the global GDP declined by 3% in the year 2019. Different countries announced substantial fiscal measures to mitigate the impact of the pandemic on the economy. A recent study highlights that the quick fiscal response of different governments protects the global output by 2% points from the potential impact of a pandemic. In addition to this, fiscal assistance also helped to support private demand and consumption in different economies (Chudik et al., 2021). As of March 2021, the global economy has spent around US$ 16trillion to protect the

[2] Policy response on COVID-19 published by IMF, https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19.

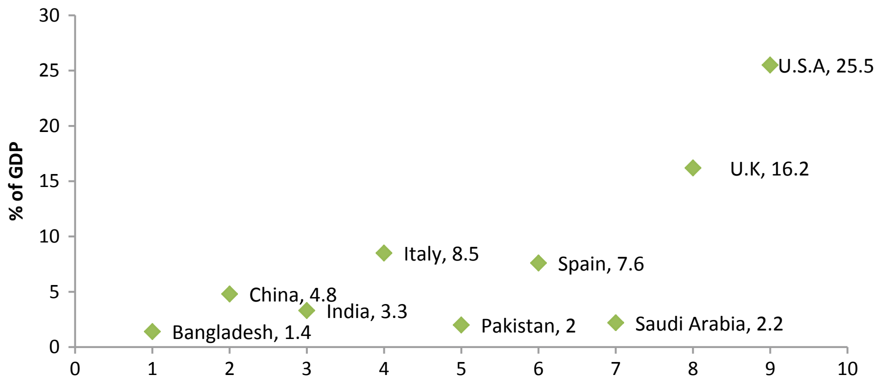

Fig. 3 Comparison of Global Fiscal Packages during Covid-19 (% of GDP). *Source* IMF Fiscal Monitor, 2021

global output.[3] Figure 3 highlights the global fiscal packages (additional spending and loss of revenues) of selected countries during the pandemic. The country-wise spending also depends on the intensity of different waves of covid-19. Pakistan, Bangladesh, and Saudia Arabia spent an additional 2% of GDP to overcome the pandemic crisis. In contrast to this, USA beard the highest spending to respond to the Covid pandemic. Similarly, UK, Itlay, and Spain also spent higher amounts to mitigate the impact of the pandemic.

3.3 Public Debt in Pakistan-Pre and Post Covid-19 Situation

In Pakistan, the total debt of the government consist of the debt of the federal and the provincial's government service out of the consolidated fund, and the debts acquired from the International Monetary Fund (IMF) excluded the deposit of governments in the banking system.

In Pakistan, the Fiscal Responsibility and Debt Limitation (FRDL) Act was implemented in 2005 and amended as per economic performance or the requirements. The act was last amended in July 2017. The last amended act sets the limits to reduce the federal fiscal deficit net of foreign grants to 4% of the GDP within three years beginning from 2017–18, afterward gradually maintain at 3.5% of the GDP. The act also ensures that by end of 2021, the total public debt to GDP ratio does not exceed 60% of the GDP and reduces 0.5% every year till 2023–24, then 0.75% up to the fiscal year 2032–33. The total debt does not exclude 50% of GDP in the said periods.

Table 2 highlights the per capita domestic and external public debt in Pakistan. In 1990 the per capita debt was Rs. 6645 with the domestic share was around 53%. However, the public debt increased in 2008. In that period, the per capita debt reached

[3] Fiscal monitor, IMF.

Table 2 Per capita public debt in Pakistan (in PKR)

Year	Domestic debt	External debt	Public debt
1990	3561	3084	6,645
1995	6622	5631	12,253
2000	11,853	11,003	22,856
2005	13,939	13,017	26,956
2010	26,449	24,766	51,215
2015	61,557	26,192	87,749
2020	110,257	62,111	172,368

Source Federal Government Budgets

almost double from Rs. 26,956 to Rs. 51,215 and the international financial crisis increased the pressure on the local currency. In addition to this, 2008 was also brought historical changes in the political economy of Pakistan, the military tenure completed and democratic governance was established. After 2010, the per capita public debt increased sharply from 51,225 to 87,749. In that time, the share of domestic debt increased and contributed around 70% to the total public debt of the country. In the current year, the per capita debt reached the highest level i.e. Rs. 172,368.

3.4 Comparison of Global Debt to GDP Ratio Response to Covid-19

As discussed in the initial part of the chapter, Pakistan's economy had been disturbed due to the pandemic. In Pakistan, during the pandemic crisis, the public debt increased with a magnitude of 1.7% points and reached 87.6% of the GDP. In contrast to this, the Global public debt to GDP ratio increased by 13% point, from 84 to 97% in the said period. Figure 4 highlights that, among all the neighboring countries, India has the highest increment in its public debt in the pandemic with a magnitude of 15.7 percentage point. The public debt also depends on the intensity of different waves of Covid-19 among the countries.

4 An Overview of Fiscal Management System in Pakistan

This section of the chapter highlights the existing financial management system in Pakistan. The economic indicators were at the highest position in the era of 2005 for instance, the real GDP growth was reached at 9% in 2005 that was the highest growth in the history of the economy, and also it was double the average growth of the economy from the past three decades i.e. 4.4%. In that era, Pakistan was

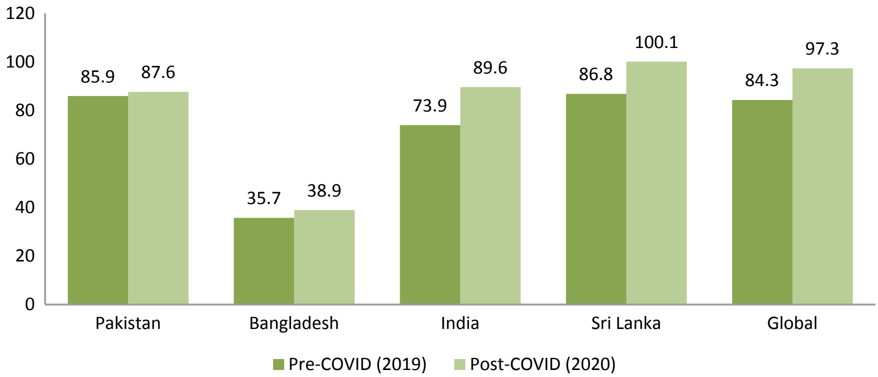

Fig. 4 Pre and Post Covid Debt to GDP Ratio by Countries (in % of GDP). *Source* Fiscal Monitor, IMF

receiving a large inflow of international investment from different countries. As far as the expenditures and revenues are concerned, the expenditure trend indicates that current expenditure has enhanced from 18 to 20% of GDP, while the development expenditures decreased from 4.4 to 2% of GDP in the past several years. However, the total revenues declined from 17 to 15% of GDP whereas the tax revenues declined from 13.8 to 11.4% of GDP. The era of 2008 to 2013 witnessed the lowest tax to GDP ratio in Pakistan i.e. around 9% of GDP. Table 3 indicates the overall fiscal position of the economy. As the overall position indicates that, the total revenue has been decreasing while the current expenditures increased. The share of development expenditures has been declined in the past three decades and the average fiscal deficit has remained at 6% of GDP since the last three decades.

Table 3 Fiscal position of Pakistan economy (as % of GDP)

Years	Real GDP growth	Fiscal deficit	Expenditure			Revenue		
			Total	Current	Development	Total	Tax	Non Tax
1995	5.1	5.6	22.9	18.5	4.4	17.3	13.8	3.5
2000	3.9	5.4	18.9	16.4	2.5	13.4	10.6	2.8
2005	9.0	3.3	17.2	14.5	2.7	13.8	10.1	3.7
2010	2.6	6.2	20.2	16.0	4.4	14.0	9.9	4.1
2015	4.1	5.3	19.6	16.1	4.2	14.3	11.0	3.3
2020	3.9	8.1	23.2	20.5	2.9	15.1	11.4	3.7

Source Fiscal policy statement, 2019–20

4.1 Analysis of Federal Taxes in Pakistan

The Constitution of 1973 assigned the basic framework for the expenditure obligations and the power of the revenue between the federal and the provincial governments. However, in 2010, the 18th constitutional amendment has devolved the many functions to the provincial governments. At the federal level, the FBR itself collected almost a 90% of federal taxes. The federal taxes are collected from two main heads i.e. direct and indirect taxes. Direct taxes comprise all incomes, profits, and gains from different sources. It is collected from individuals, companies, and associations of person and withholding taxes by various withholding agents. The tax is also collected from the capital value tax, corporate assets tax, and workers' welfare fund. In contrast to this, indirect taxes include sales tax (which is collected at the import stage and the manufacturing of the domestic goods), customs duty, and federal excise duty. Table 4 discusses the share of direct and indirect taxes in Pakistan. The share of direct taxes has been enhanced from 15 to 40% in the past several decades. Within the direct tax, the income tax contributes around 90%, while the remaining 10% of direct taxes are collected other than income tax. The share of indirect tax decreased from 85 to 62% in the total taxes. Within direct tax, the customs duty is collected from all dutiable imports while the federal excise duty is levied on the manufacturing of specific commodities and services. Within this category the share of sale tax increases while the share of excise duty and customs duty decreases.

In Pakistan, the indirect tax is generally regressive when the government needs to generate additional revenues. The indirect tax helps the government to collect the tax revenues. In 1999 the government increased the standard tax rate from 12.5 to 17% (Pasha, 2014).

Table 4 Share of direct and indirect taxes (% of total taxes)

Years	1990 (%)	1995 (%)	2000 (%)	2005 (%)	2010 (%)	2015 (%)	2020 (%)
Direct tax	**15**	**27**	**33**	**31**	**40**	**40**	**38**
Income tax	96	96	93	95	96	97	99
Wealth tax	2.7	2.7	3.5	0.0	0.0	0.0	0.0
Other taxes	1.4	1.5	3.3	5	4	3	1
Total direct tax	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Indirect tax	**85**	**73**	**67**	**69**	**60**	**60**	**62**
Customs	55	47	26	28	20	20	25
Federal excise	24	26	24	13	16	10	10
Sales tax	21	26	50	59	64	70	65
Total indirect tax	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source FBR's yearbook (various years)

4.2 Expenditure Pattern of Federal Government

The current expenditures of the federal governments consist of debt servicing, defence, grants and subsidies, and salaries and pension-related expenditures. However, the development expenditure of the federal governments comprises of the expenditures on the federal Public Sector Development Program (PSDP), Benazir Income Support Program (BISP), and the Ehsaas program etc. The current expenditures of the federal government consume 80% of the total expenditure while the development expenditure consumes 20% of the total expenditures. In development expenditures around 80% of the budget is allocated to PSDP of the federal government. Overall the share of federal development expenditures declined from 27% to the 19% since 1990.

4.3 Expenditure Pattern of Provincial Governments

At the provincial level, the current expenditures consist of the expenditures of general public services, civil defence, health, and education, etc. while the development expenditures mainly consist of annual development programs for provincial and district levels. In Pakistan, the devolution plan 2001, brought fundamental changes in the patterns of the provincial expenditures. The devolution plan 2001, devolved the major functions to the district governments. Similarly, the 18th amendment has devolved the many functions to the provincial governments in 2010. Table 5 reflects that the share of development expenditures doubled from 10 to 20% across provinces during the devolution period. However, among the provinces, the KP government

Table 5 Share current and development expenditures by governments (% of Total Exp)

	Federal		Punjab		Sindh		KP		Balochistan	
Years	Cur (%)	Dev (%)	Cur (%)	Dev (%)	Cur (%)	Dev (%)	Cur (%)	Dev (%)	Cur (%)	Dev (%)
1990	73	27	84	16	88	12	78	22	98	2
1995	81	19	96	4	94	6	73	27	96	4
2000	88	12	92	8	90	10	80	20	99	1
2005	83	17	72	28	78	22	75	25	81	19
2010	78	22	70	30	73	27	72	28	74	26
2015	80	20	76	24	74	26	68	32	72	28
2020	85	15	82	18	86	14	76	24	83	17
Average	**81**	**19**	**82**	**18**	**85**	**15**	**74**	**26**	**86**	**14**

Source Economic Survey of Pakistan, (various years) allocated the highest share for the development budget whereas the Balochistan government allocated the lowest share for the development budget in the past three decades.

4.4 Fiscal Imbalances Between Federal and Provincial Governments

The federal government has revenue generation power compared to the provincial governments in Pakistan. Similarly, the provincial government has more expenditure responsibility compared to the revenue collection power. Table 6 reveals the fiscal imbalance between the federal and the provincial governments in Pakistan since 1990. It seems that Pakistan moves towards revenue decentralization, as the revenue share of the sub-national governments increased from 4 to 9%. Similarly, the share of the expenditure of the provincial government also increased from 28 to 34% in the said periods. Overall the fiscal imbalance is constant due to the enhancement of the share of expenditures at the sub-national level.

5 Intergovernmental Fiscal Relation in Pakistan

Article 160 of the 1973 Constitution of Pakistan discusses the intergovernmental fiscal relationship between the federal and the provincial governments in Pakistan through the National Finance Commission Award (NFC). In Pakistan, the NFC is comprised of federal finance ministers and four provincial finance ministers, and four non-statutory members (or technical members) nominated by the provincial governments. The federal finance minister is also the head of the commission. In addition to this, the principal objective of the commission is to determine the formula

Table 6 Fiscal imbalances of provincial governments

Years	Federal revenue share (%)	Provincial revenue share (%)	Federal expenditure share (%)	Provincial expenditure share (%)	Federal (Rev- Exp) Surplus	Provincial (Rev- Exp) Imbalance
1990	96	4	72	28	24	-24
1995	94	6	71	29	23	-23
2000	93	7	73	27	19	-19
2005	94	6	70	30	24	-24
2010	9	6	73	27	21	-21
2015	93	7	68	32	25	-25
2020	91	9	66	34	24	-24

Source Author's estimate from an economic survey of Pakistan, (various years)

Table 7 Vertical and horizontal share by NFC awards

Level of government	NFC award, 1990 (%)	NFC award, 1997 (%)	6th NFC award, 2006* (%)	7th NFC award, 2009** (%)
Federal government	20	62.50	58.50	42.50
Provincial governments	80	37.5	41.50	57.50%

* The share provincial share increased 1% yearly
** In the first year, the share was 58.50% for federal and 41.50% for provincial governments. *Source* NFC reports (various awards)

for the distribution of the federal divisible pool (i.e. federal taxes), straight transfer, and provision of federal subventions and grants in aid after every five years. Moreover, the NFC may also recommends the fixed proportion of subvention or grant in aid includes special non-development grants to backward provinces or all provinces.

Overall Pakistan has distributed eight revenue-sharing awards since 1951 and the ninth NFC is underway. The first award was announced in 1951. The remaining awards were announced in 1961–62, 1964, and 1970 accordingly. Further, the rest NFC awards were designed in 1974 than 1990, 1997, and the existing NFC award in 2009 respectively.[4]

In Pakistan the trend of fiscal decentralization is increased gradually, the federal government reduced the vertical share of the federal taxes and increased the horizontal share through the distribution of fiscal resources. While in the 1990 NFC award the taxes were limited in the divisible pool. Under that award, the 80% of the taxes were distributed by the federal government to the provincial governments. Table 7 indicates the comparison of the vertical and horizontal share of the fiscal resources between the federal and the sub-national governments in the country.

5.1 Composition of Divisible Pool Taxes

The composition of Divisible Pool Taxes (DPT) is discussed in Table 8. In 1990 NFC included new taxes in the divisible pool compared to the previous awards. Then, the 1996 award included all federal taxes in the divisible pool. As the table highlights that the divisible pool substantially expanded but the share of provinces in the divisible taxes was reduced from 80 to 37.5% in the 1990 and 1996 awards. However, the 2006 award has enhanced the provincial share in the divisible pool of taxes from 45% and increased an additional 1% on yearly basis. In addition, the same revenue-sharing award increases the share of the divisible pool taxes and now it stands at 57.5% the award also devolved the sale tax on services to the provinces, now provinces are collecting GST on services through their revenues collecting authorities.

[4] The president of Pakistan announced the amends to the distribution of revenues and grants-in-aid order 1997 and implanted in 2006 as Revenue grant-in order 2006.

Table 8 Composition of divisible pool taxes by NFC awards

S. No	Divisible pool taxes	NFC award, 1990	NFC award, 1996	6th NFC award, 2006	7th NFC award, 2009
1	**Income Tax**				
	Personal	80%	37.50%	45–50%	56–57.5%
	Corporate				
	Wealth tax	–			
2	Sale tax	80%			
3	**Excise Duties**				
	Excise duties on Tea	–	37.5%	45–50%	56–57.5%
	Excise duties on tobacco and tobacco manufactures	80%			
	Excise duty on sugar				
	Excise duty on betel nut	–			
	All excise duty excluding GST	–			
4	**Export Duties**				
	Cotton	80%	37.5%	45%-50%	–
	Jute	–	–		–
5	Tax on immovable properties	–	37.5%		devolved to provinces

Source NFC reports (various awards)

In Pakistan, the DPT has been distributed based on population share at the sub-national level in all revenue sharing awards except the 7th NFC award. This award adopted multiple criteria for the distribution of DPT among the provinces. Table 9 highlights that the mechanism of horizontal distribution of fiscal resources and the shares of each province since 1990. The four provinces have adopted four indicators which have the comparative advantage of each province in one indicator, for instance, Punjab has an advantage on the population, Sindh has comparatively better in the revenue collection, while KP has a high weight in poverty and the Balochistan has the advantage in inverse population density.

The KP is also receiving 1% of DPT in compensations for costs of the war on terror. Due to the adoption of multiple indicators, the Sindh and KP provinces receive an additional 01% share compared to previous revenue-sharing awards. While Balochistan gains an additional 05% share in the existing award, the only Punjab

Table 9 Composition of horizontal distribution mechanism and its shares by province

Distribution indicators	NFC award, 1990	NFC Award, 1997	6th NFC award, 2006	7th NFC award, 2009
Population	100%	100%	100%	82.0%
Poverty or Backwardness	–	–	–	10.30%
Revenue Collection/Generation	–	–	–	05%
Inverse Population Density	–	–	–	2.70%
Provincial Shares Under various NFC Awards				
Punjab	57.88%	57.88%	57.36%	51.74%
Sindh	23.28%	23.28%	23.71%	24.55%
KPK	13.54%	13.54%	13.82%	14.62%
Baluchistan	5.30%	5.30%	5.11%	9.09%
Total	**100%**	**100%**	**100%**	**100%**

Source NFC reports (various awards)

province bears a loss due to the implication of multiple indicators in horizontal distribution of fiscal resources in the existing NFC award.

Apart from the divisible pool in 1990, the NFC took the initiative to incorporate the provincial rights on the natural resources through the distribution of straight transfers (STR) among the provinces. STR includes the development surcharge and the excise duty on gas, crude oil, and net hydel profits based on the collection. However, the 1997 revenue sharing arrangement also included the royalty on gas and crude oil. Further, the KP province also received Rs. 6 billion on annual basis as a profit of net hydel profits from the water and development authority. The existing NFC also resolved the outstanding issue of arrears on the net hydel profits and development surcharge on gas.

The third and the last component of NFC award is the Grant-in-Aid /Subventions. Previously, these grants support the provinces to meet the required revenues target and also provide support if the provinces faced a deficit in the budgets. Such as in 1990 revenue-sharing award allocated grants to the provinces to finance their budget deficits. While the 1996 NFC award given special grants to the two smaller provinces equivalent to Rs. 3.3 billion and 4billion for KP and Balochistan respectively. Till the implementation of the existing award, the amount of these grants reached Rs. 58billion because the 2006 NFC introduced the grants for all provinces. The current award has restricted this allocation under the head of the third component of NFC; Only Sindh province is getting a grant in place of the abolition of Octroi and Zilla tax (OZT).

Table 10 Comparative advantage of provincial governments in multiple criteria

Indicators	Punjab (%)	Sindh (%)	KPK (%)	Baluchistan (%)	Total (%)
Population	57.36	24	14	5.1	100
Poverty or Backwardness	23.17	23.42	27.83	25.62	100
Revenue Collection/Generation	44	50	5	1	100
Inverse Population Density	4.32	7.18	6.5	81.99	100

Source NFC reports (various awards)

5.2 *Decentralization in the 7th NFC Award*

The mechanism of resource distribution in the 7th NFC award has fundamentally changed the intergovernmental fiscal relation in the country. As discussed in the earlier paragraphs, it introduced the concept of multiple indicators in the sharing of horizontal distribution of fiscal resources. The indicator of the multiple criteria in the award has the benefit of the province as discussed earlier. Table 10 reveals the provincial comparative advantages in the adoption of different indicators. Balochistan gains an additional 5% of fiscal resources. While Punjab lost almost 5% of its share.

In addition to the comparative advantage, the 7th NFC award strengthens the intergovernmental fiscal relation through fiscal decentralization. Constitutionally, the federal government is responsible to charge the General Sale Tax (GST) on services but the provincial governments are responsible for the collection of these taxes. In 2000–01, the provincial governments empowered the federal government to collect the GST on services. Article 8th of the 7th NFC award 2009 devolved GST on Services to the provinces. Before the devolution of GST, the federal government has collected the tax as GST CE mode and GST Provincial. In 2010, GST Provincial mode was transferred to the provinces based on population share. However, the GST CE mode was being treated similarly to GST on goods before the implementation of the 7th NFC award.

As discussed above, the four provinces have different contributions to the national GDP. Similarly, the four provinces have a different tax base for the collection of services taxes. At the provincial level, the province of Sindh charged a 13% tax rate on different services which is the lowest among provinces. In contrast to this, the Punjab province charged a 16% tax rate. The remaining two provinces collect this tax with a 15% (SRB, 2015). Table 11 compares the per capita collection of GST on services across provinces. Sindh is collecting Rs. 646 per person which is double the largest province of Pakistan. The combined four provinces collected on an average GST Rs.341 during the last five years.

The provincial government also collects taxes in different domains such as the agriculture income tax, property tax, motor vehicle tax, etc. At the provincial

Table 11 Provincial comparison of GST on services (in Real per Capita)

	Punjab	Sindh	KP	Baluchistan	Combined
2015–16	221	534	100	80	269
2016–17	276	641	131	131	332
2017–18	359	776	133	214	415
2018–19	276	655	113	234	339
2019–20	290	626	164	251	348
Average	**285**	**646**	**128**	**182**	**341**

Source Provincial budget documents (various years)

level currently, 26 different rates on different categories of goods and services are implemented among provinces (World Bank, 2019).

6 Public Financial Management Reforms in Context of Existing Government

The government of Pakistan Tehreek-e-Insaaf (PTI) came into power in 2018, during the three years, the PTI's government has taken many initiatives in the context of financial management in the country; Firstly, the federal government has introduced the reforms in the public financial management system at the federal level through the Public Finance Management (PFM) Act, 2019. The basic objectives of this act are to anticipate the cash need of the government, to ensure the availability of cash, and also to manage cash balance account in the government bank account. According to this law, the federal government is required to maintain its federal consolidated fund account and the public account of the federation in the SBP. After this implementation, no authority can transfer public money for investment/deposit from a government account to another bank account without prior approval from the federal government.

Secondly, The FBR has taken initiatives in multiple domains which include amendments in income tax ordinances 2001, sales tax act 1990 and federal excise rules 2005. In addition to this, the institution also introduced assets declaration ordinance, Benami transaction (prohibition) rules in 2019, Anti-smuggling ordinance 2020, etc. Other initiatives include automated refunds through IBAN to the business sector. These major initiatives help to increase the overall revenue collection in the country as in the last year, in addition to this, fifty thousand new taxpayers have been included in the tax net and the 3million people filed their income tax return in the year 2020. Similarly, FBR tax collection grew by 18% in the same year.

Thirdly, the State Own Enterprise (SOE) was operating under the loss and created the financial burden on the economy such as the net loss of 210 SOE was reached at Rs. 286billion by the end of 2018.[5] The major loss of SOE includes Pakistan Railways, Power Distribution Companies, and the Pakistan international airline, etc. The existing government brings the reform plan through the SOE, Governance & Operation Act, 2021 which aims to improve the legal framework through defining the role for the board of SOE and the line ministries, etc.

Furthermore, the government also launched the Global Medium Term Note program in the international capital market and raised US$2.5billion through Eurobond. For overseas Pakistani, the current government also initiated the Pakistan Banao Certificates and the Naya Pakistan Certificate. These certificates may help overseas Pakistanis to contribute in the development of the country.

Lastly, The Board of Investment (BOI) has taken major initiates to improve the business environment in the country, BOI prepared investment promotion strategy 2020–23 for the next three years. The strategy prioritized the investment in tourism, housing, and constructions, foods, and beverages, textiles and logistics, etc. In addition to this, 15 new SEZs were approved by the sub-department (board of appraisal chaired by the prime minister) of BOI in the past three years.

7 Conclusion and Recommendations

The chapter of this book covers the public financial management system in the context of the new global environment that brought the pandemic crisis. This chapter discusses the direction of economic policies that help to mitigate the impact of the pandemic on the overall performance of the GDP. This chapter briefly discusses the fiscal position of the economy and highlights the existing financial management system in the country.

The pandemic crisis has declined the performance of the economy. The federal government has spent an additional 2% of GDP and acquired 1.7% additional debt during the pandemic crisis. Similarly, the GOP has also changed the direction of economic policies through special packages to business sector, relief packages to the citizens and the cash transfers to the lower-income group. These fiscal stimulus packages have helped the economy for the quick recovery of the aggregate economic activities such as in 2021 the growth pattern of the economy reflects the V-Shaped recovery.

As far as the financial management system of the economy is concerned, the collection of direct tax increases continuously whereas the share of indirect taxes decreases in the past several years. In contrast to this, the 18th amendment devolved the major functions to the provincial governments, around 80% of the regional budget is allocated in current expenditures, while the shares of development expenditures continuously declined in the economy. The subnational government still highly depends on the intergovernmental fiscal transfers in the country such as the average fiscal imbalance of combined four governments is 24%. Despite the devolution of

[5] Economic survey of Pakistan, 2021.

GST on services to the provinces, the provinces have narrow tax bases and generate only 10% of total taxes.

The government has taken major initiatives to increases the tax base and the tax net in the economy through digitalization or automation. Despite the efforts of the federal government, around 3million resident returned their income taxes filed in 2020. Pakistan is ranked fifth in the list of Pandora papers, the elite class of Pakistani always prefers to invest in different countries, around 700 Pakistani hold offshore companies in different countries.[6]

As far as the recommendation of the chapter is concerned, the GOP may increase the expenditures for the social protection-related program because the pandemic has increased the poverty rate in the country. In addition to this, for the fiscal side of the economy, the government may decrease the tax rate as in the current situation the Pakistani pay's highest sale tax rate in the region. Similarly, after the devolution of GST to the provinces, the provincial governments still depend on federal transfers, etc. The federal government may link the fiscal performance of the provincial government with the NFC mechanism.

Lastly, in Pakistan, the 7th NFC devolved the high share to the provincial governments. The public debt is also increased continuously in this award period so there is a need to find the reasons behind these relationships.

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"Philippine National Urban Development and Planning For Sustainable Development Goals During the Pandemic Crisis"

Jennifer Operio

Learning Outcomes:

After studying this chapter, you should be able to:

1. Understand the country's urban development and planning for its sustainable development in the midst of the pandemic.
2. Learn about the country's strategies that are now being adapted for urban development in relation to the United Nation's SDGs.
3. Identify the importance of urban development and planning for a nation's SDGs specifically during the Covid-19 Pandemic crisis.

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1 Overview and Introduction

According to Edison C. Guido (2021), in 2019 the Philippines was among the fastest-growing economies in Southeast Asia, expanding at a growth rate of 6.1% GDP. But because of the government imposed lockdown as one of the world's longest lockdowns, it crippled its economy and thrown a wrench in the country's development. The country suffered a 9.5% GDP contractions in 2020 considered as the worst in the region. Metro Manila as the nation's capital and one of the hotspots for COVID-19 surge cases had to shut down to prevent further the spread of the virus.

The Covid-19 pandemic has highlighted the urgency of integrating various considerations in urban planning, including infrastructure, environment, economic activities, and spaces to bring communities together in our cities (Raghnunath, 2020). She

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emphasized that COVID-19 pandemic is a wake-up call that we must work collectively to make our cities liveable an designed around health, safety, and well-being of all residents. The crisis of the global pandemic clearly is making a mark on cities either physically and socially which will reverberate for generations to come.

According to Van de Berg (2020), "cholera epidemics in the nineteenth century sparked the introduction of modern urban sanitation systems". Housing regulations around light and air were introduced as a measure against respiratory diseases in overcrowded slums in Europe during industrialization. The introduction of railroads had an immense impact on national urban systems, and the mass production of the car has led to cities that bleed seamlessly into sprawling suburbs, creating vast city regions. For the past few years, the advent of technology and digitalization changed the way we navigate cities and how communities mobilize and advocate for change. It is a fact that the pandemic already altered urban life and work from home is now the "new normal" as they say. Millions of small businesses and workers in the urban centres around the globe have fate hanging in the air.

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The loss of prime agricultural lands is a related consequence, pushing food production areas farther away and increasing food prices. It is a challenge on how to empower and capacitate the public sector to promote and regulate urban expansion that is more inclusive and sustainable (NUDHF, 2017).

SDG 11 aims to "make cities and human settlements inclusive, safe, resilient and sustainable."

Section 16 of the Local Government Code dictates that the LGUs will exercise their powers for efficient and effective governance towards the promotion of the general welfare. The globally accepted framework known as the Sustainable Development Goals (SDGs) which was adopted by world leaders in September 2015, which officially came into force on January 1, 2016, set the course for a global effort to end all forms of poverty, fight inequalities, and tackle climate change (NUDHF, 2017).

Within SDG 11 goal are targets that constitute the built environment agenda, and ensures that issues are addressed through the spatial lens. **SDG 11** is transformational, targeting the sequential progress required to achieve higher-level outcomes in other goals. It also empowers cities as arenas of implementation, as well as local governments as the level closest to people. Moreover, with more than half of the world's population now considered urban dwellers, cities will determine the success of the overarching goals of poverty eradication, equality, climate change action, and ensuring healthy lives. Fifteen out of the seventeen SDGs can be implemented only at the local level which is an important consideration for the Philippines, which places local government units at the forefront of development action. The target focus of sustainable cities and communities under SDG 11 will also help to guide the country's urban development actions at the national and local level. The Philippines aims that:

(1) By 2030, ensure access for all to adequate, safe and affordable housing and basic services, and upgrade slums.
(2) By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.

(3) By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries.

 (3.1) Strengthen efforts to protect and safeguard the world's cultural and natural heritage.

(4) By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.

(5) By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.

(6) By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons, and persons with disabilities.

 (6.1) A Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning.

(7) By 2030, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels.

 (7.1) Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials.

2 New Urban Agenda

The New Urban Agenda aims to address urban poverty and social exclusion, as well as to enhance and extend human rights perspectives in their application to cities and human settlements. It encourages a shift in the predominant urban pattern to minimize socio-spatial injustices, enhance equity, increase inclusion, broaden political participation and ensure a decent life for all inhabitants (United Nations, Habitat III Policy Paper 1).

Included in the New Urban Agenda is **The Right to the City**, a new paradigm that "re-thinks cities and urbanization" and envisions the effective fulfillment of all internationally agreed human rights, the SDGs, and the commitments of the Habitat Agenda. The Right to the City pertains to the diversity of all inhabitants on the basis of their common interests. It belongs to present and future generations; it is indivisible and not subject to exclusive use or appropriation. It can be exercised in every metropolis, city, *barangay*, or town that is institutionally organized as a local administrative unit with district, municipal, or metropolitan character. It includes the urban space as well as the rural or semi-rural surroundings that form part of its territory.

The Philippine government recognizes that achieving the aims of the New Urban Agenda requires a national urban policy that effectively establishes the connection between the dynamics of urbanization, demographic dynamics, and the overall process of national development. A successful policy shall harness the benefits of urbanization while responding to its challenges. This is accomplished through the development of a much broader, crosscutting vision of an urban landscape, embracing urbanization across physical space, bridging urban, peri-urban and rural areas, and addressing challenges such as integration of climate change through national and local development policy frameworks (United Nations, Habitat III Policy Paper 3).

3 Philippine New Urban Agenda (PhiNUA)

The New Urban Agenda of the Philippines lays down the following action areas:

1. ***Urban Demography***: Capturing the youth dividend, a more spatially balanced and interconnected development, and safeguards for the vulnerable and disadvantaged;
2. ***Land and Urban Planning***: Effective regional planning and development, planning for climate change adaptation and disaster risk reduction, and improving access to urban land;
3. ***Urban Environment***: Climate change and disaster resiliency, urban environmental infrastructure improvements, and developing green cities;
4. ***Urban Governance***: Stronger sector leadership, effective multilevel governance, improved local urban governance capacity, and participatory and transparency mechanisms;

4 Urban Planning and Design

Planning and design are central to achieving sustainable urban development. In many ways, planning addresses development issues such as inefficient density, transport and mobility, and, increasingly, urbanization as an exacerbating factor of as well as a solution to climate change impacts. Planning is a springboard for more detailed action at various scales, from streets and open spaces and down to blocks, plots, and building typologies. The following strategies encourage urban plans and designs that promote well-organized development patterns, efficient density, low-carbon development, energy efficiency, mixed land use, good connectivity, and social integration.

5 Urbanization in the Philippines

5.1 *An Archipelagic Nation*

The country has a total land area of approximately 343,448.32 km^2, comprising at least 7,641 islands (CNN Philippines, 2016). Bounded on the north by the Balintang Channel; on the south by the Sulu and Celebes Seas; on the east by the Philippine Sea and Pacific Ocean; and on the west by the West Philippine Sea, the Philippine archipelago is one of the largest island groups in the world, with three major divisions:

Luzon - 147,947.63 km^2
Visayas - 59,873.84 km^2
Mindanao - 135,626.85 km^2

The country has multilevel administrative subdivisions, comprising 18 regions, 81 provinces, 145 cities, 1,489 municipalities, and 42,036 barangays (The Philippine Government 2018). The Philippines has a 36,289 km coastline, the fifth longest in the world. About 60% of the population.

6 Urban Planning in the Philippines

The urban planning in the country occurs at various levels: national, regional, provincial and municipal/city government levels. The national, regional and provincial levels have high-level policy plans that increase in detail to guide the municipal/city plans.

The Local Government Code mandates local governments "to prepare their Comprehensive Land Use Plans enacted through zoning ordinances, which shall be the primary and dominant bases for the future use of the land resources."

Photo @UN-Habitat

7 Spatial Equity and Urban Land Efficiency

With proper urban planning and design, cities and municipalities can benefit from urban land efficiency. For instance, the concept of compact cities, with elements like mixed land use, efficient density, connectivity, and diversity, is becoming popular and more acceptable among urban planners, LGUs, the academe, and Key Shelter Agencies. However, the knowledge, tools, policies, and institutional coordination that gave focus on the urban systems remain inadequate. While private developments, gated or master-planned communities, display forward- looking design principles such as high density and mixed land uses, they remain disconnected from the larger urban fabric.

This inadequacy and exclusivity have decreased the ability of urban planning to transform urban activity into positive outcomes for the larger population, and has instead resulted in problems such as urban sprawl, land speculation, social segregation, congestion, informality, increasing greenhouse gases (GHG) emissions, encroachment of prime agricultural and fragile lands, high cost of urban infrastructure and services, ineffective property taxation and land valuation practices, declining density of public spaces, and the issues on connectivity (HLURB, 2016).

8 Urban Connectivity and Mobility

The Comprehensive Land Use Plan (CLUP) and the Comprehensive Development Plan (CDP) set the physical and sectoral strategic plan for local transport, respectively.

The scope of transport, which is under the infrastructure sector, is often limited to roads, and, when applicable, sea and airport facilities. Only a limited number of cities have transport and traffic management plans. Transport planning is often fragmented and not approached as a network in strategic plans. While the spatial strategies that are presented in the CLUP present the proposed road network plan, it often only follows the wider framework set by national agencies, or, if proposed by the LGU, is not guaranteed to be implemented due to budget constraints or politics.

Comprehensive urban transport plans that feature an integrated land use and transport approach are also perceived to be too complicated and costly to be undertaken by most LGUs. These have been conducted only for highly urbanized cities like those in Metro Manila, Metro Cebu, Iloilo City, and Metro Davao. LGUs have limited capacity not only for transport planning and management, but also urban design, which would help transform strategies into built form. While compact development, densification and mixed-use development are already promoted through zoning, accessibility on ground is often still de-prioritized, if not disregarded. As a result, congestion is more prominent in the urban core areas, and non-motorized transport.

9 Issues and Opportunities

Urban plans and designs will help determine cities and municipalities' capacity to adapt to climate change and prepare for disasters. Urban planning and design can directly contribute to climate change adaptation and mitigation, through land and water use and protection, urban forms, specific area development, building designs and even choices of materials and inputs for development.

There is a need to develop appropriate and adequate planning measures to prepare cities and towns for highly complex urban transformation processes that meet the conditions of sustainability, and enable the built environment to function in a more productive and equitable manner.

Planning and design must target urban activities that have led to persistent urban problems like inadequate and expensive housing, urban blight, urban sprawl, car dependency, segregation and exclusion. LGUs and other stakeholders should explore the development of more compact, open, walkable, connected, and integrated settlements that aim to solve such problems.

The physical scope of planning needs to be reviewed to acknowledge and optimize various spatial structures and functional regions, such as the metropolitan area, watershed, and others beyond the usual administrative and political jurisdiction.

A fundamental shift in planning approaches—from development led by the market and private sector to one that is steered by the public sector—is necessary.

It is vital that the government addresses the central issue of planning at the local level, specifically: outdated approaches; lack of a sufficient planning database and tools for analysis; plan continuity and implementation; and monitoring. These would require technical and financial investments.

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Transcontinental Diffusion of Covid-19: Impact on Human Security

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Abstract This article assesses the security threats posed by non-traditional security challenges (NTS) to human security at the global level. NTS, such as an infectious disease like the current Covid-19, climate change, and natural disasters, have long opened Pandora's box for civilizations across the continents. The ecological process in maintaining a healthy ecosystem and biodiversity has long experienced both dependent and interdependent relationships with humans and animals. Human security was established to develop an inseparable relationship with ecology and animals. This research finds that divisions in sovereign political units across the continents have taken attention away from the threats posed by both infectious diseases and the environment. The result is a reduction of human security at the global level. Thus, this study contributes by exposing infectious diseases and ecology as global common indicators that undermine global security. In addition, the study provides intellectual insights which can be used to theorize infectious diseases and the environment for global political leaders so the latter may create active defense mechanisms in the future.

Keywords NTS · Human security · Infectious diseases · Climate change · Covid-19

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1 Introduction

The word pandemic comes from the Greek 'pan,' which means 'all' and 'demos,' which means 'people' (Wolfe, 2011). The World Health Organization (WHO) declared the Corona virus as a global pandemic on March 11, 2020 (Gul, 2021). Previously, the United Nations Security Council (UNSC) had declared the outbreak of another type of virus (Ebola) in 2014. This was the first-time infectious diseases were considered a threat to human security and peace at national and international levels. The resolution was adopted by Security Council 2177/2014, according to Article 39 of the United Nations Charter. This action provided evidence that health is one of the most important components of human security. It should be noted that this securitization of health as a concept was initially developed by the Copenhagen School (Pavone, 2016).

Infectious diseases have challenged human health since time immemorial. When disease becomes an epidemic, it challenges the national security of a state. When it spreads beyond the border of one state to the national domain of other states, it becomes a pandemic and threatens international security. While millions of lives were lost because of World War I from 1914 to 1918, infectious diseases like the influenza outbreak killed 21 million people in a few months in 1918. Infectious diseases are exacerbated by the fact that there is only one human species but there are more than 5000 viruses and over 300,000 bacterial species, the latter of which are multiplying every second (Chalk, 2000).

Imagine what has become lethal to human security today. The sharpest lances, swords, arrows of the past were both weapons of terror and protection from an enemy onslaught. Gunpowder replaced these threats which were further replaced by the advanced weapons of today. National and international security have been made dependent on effective strategic and nuclear deterrence among nations. Less action has been taken to develop human security against viral and bacterial infections. Microbes such as found in Epidemic Typhus, Plague Flea, Yellow-Fever-Mosquito, Dengue, Zika, and Ebola have impacted global populations at political, military, economic, diplomatic, and social domains. Historically, infectious diseases have played roles in destroying the pre-Columbian Societies, Byzantine Rome, and the feudal order in Europe. The author of 'Peloponnesian Wars' remarked on the impact of infectious disease on war efforts and how they weakened the Athenians (Price-Smith, 2002).

National and international leaders have ignored the most basic component of human security, that is, the concept of health security. First, modern national states have no effective preventive defense mechanism before the outbreak of an infectious disease. As compared to security threats from military action, states have organized armed forces to prevent an aggression with the help of conventional and non-conventional weapons. There have been no such effective force or efforts to prevent and eliminate the onslaught of lethal microbes (Price-Smith, 2002).

There are dependent and interdependent relationships between pathogens and the environment. The climate change phenomenon helps the virus and bacteria to multiply and spread rapidly. The more states are affected by climate change, the more pathogens multiply to transmit the disease. A rise and sudden fall in temperature can result in destabilization of worldwide security (Price-Smith, 2008).

Previous research has elaborated on pandemics and epidemics such as HIV/AIDS, Ebola, and Zika. These microbes' impact five of the seven dimensions of human security. They have had national and global impacts. HIV/AIDS essentially became an apocalypse. In 2005, more than 40 million people were infected (Walker & Novogrodsky, 2006). The WHO showed a global figure of 37.9 million HIV/AIDS cases in 2018 alone. The newest threat to human security is the outbreak of the Corona virus (Covid-19) in 2019.

An attempt is made herein to emphasize the importance of focusing on the transcontinental diffusion of Covid-19 as a non-traditional threat to traditional security apparatus. This is done in the belief that this pandemic may become the most dangerous contagious outbreak in human history. To do this, the authors present an analysis of the historical population movement. Second is a discussion of pandemics such as Covid-19, in a human security perspective, as being a serious global threat. Third is a discussion of the relationship between climate change and infectious diseases as a non-traditional threat to fundamental components of human security. Finally, Covid-19 and its consequences on social and economic indicators, as well as challenges to the global distribution of military forces, are discussed.

2 Literature Review

2.1 Population Movement in the Ancient and New World

Humans inherited a collection of pathogens from a parasite fauna, which resembled Apes, during their nomadic lives two-million years ago. This gave birth to large social groups, allowing the microbes to increase both transmission and multiplication of the pathogen. With the advancement of irrigation systems between 5500 BC and 2000 years ago, the very first pathogens infected human beings. These pathogens came from domestic animals. Examples include measles from cattle and smallpox from cowpox. Smallpox is an infectious disease which originated in India. Smallpox from cowpox infectious diseases caused 25 percent of the deaths in Athens in 430–429 B.C. Rome similarly faced such deaths in 165–180 A.D. with about 5000 deaths each day. The Plague of Justina (541–549 AD), however, has been cited as the beginning of the first plague pandemic. The disease afflicted the entire Mediterranean Basin, Europe, and the Near East. It was reported to have killed about a fifth of the population in the imperial capital of Constantinople (Littman & Littman, 1973).

The most disastrous infectious outbreak took place in Europe in the late 1340 s. The severity of the plague resulted in death to almost everyone. There were few people remaining alive to bury the dead. Entire families died. There are claims that only ten percent of the population survived (Horrax, 1994). For many centuries, Europe faced a disastrous onslaught of infectious disease.

The mass movement from Europe to America also brought infectious diseases. The spread of this disease caused many deaths. The impact on Mexico was disastrous. A Mexican population pf 20 million dropped to only three million from 1618 to 1668. In the next 50 years the Mexican population remained 1.6 million. In Europe, another epidemic of influenza occurred from 1556 to 1560 (Dobson & Carper, 1996). After the waning of empires in Europe and elsewhere and the introduction of nation-state system brought the transnational movement of pathogens.

After Europe's division into territorial states, a state was considered as the epicenter of security. These units, while fighting each other, declared world wars. The first world war (WWI) occurred in 1914 to 1918. This war resulted in the loss of millions of lives. It was exacerbated by the outbreak of another infectious disease which became known as the Spanish influenza of 1918. It spread among the armed forces in the battlefield and among civilians in the most populated areas of Europe. The population of the world was 1.6 billion. According to one source. The influenza killed 50 million people (Barry, 2004).

The transnational mobility of people during WW-I increased the spread of influenza. For example, the US military experienced more dead influenza causalities than they did from enemy weapons. The virus spread within the US military from camp to camp across the Atlantic. The US suffered the sickness in about 20–40% of their army and navy (Byerly, 2010). Apart from taking lives in the millions, it impacted many domains such as increased rates of physical disabilities and lower socioeconomic conditions. The latter included reduced educational attainment, employment status, occupational type, subjective perception of socioeconomic status [SES], income, and wage rate (Almond, 2006).

On June 9, 2009, a pandemic called the Swine Flu arrived. This virus purportedly spread in the US due the movement of the US soldiers returning from the Vietnam. The story of pandemics does not end here. Another virus, Ebola, threatened people in Liberia, Sierra Leone, Guinea and then spread to other regions. WHO declared the Ebola pandemic on August 8, 2014. This virus killed 2600 people and infected around 5300 (Barrios, 2014). Another viral attack (ZIKA) arrived in 2015. It then spread to 45 nations, however, no large death casualties occurred like the recent attack of the corona virus (COVID-19) in December 2019. A comparison of such microbes, along with their death tolls, is shown in Table 1.

According to the report of WHO issued on March 18, 2020, the outbreak of corona virus showed a rapid spread of the disease in different regions. The report has revealed to that there were 191,127 people infected and 7,807 died globally. Almost every region was infected. The most infected region was the Western pacific region where 91,845 infections were confirmed, and 7,807 people died as of March 18, 2020. The second largest infected continent was the European continent where there were even more infections and 3,357 people died. The third largest infected region was the South-East Asia region where 538 people are infected, and 9 deaths have occurred. The East Mediterranean region where 18,060 people infected and 1010 died. The regions of the America show 4,979 people infected and 68 died. The last infected

Table 1 Comparison of microbes and death tolls

Name	Time period	Type/Pre-human host	Death toll
Antonine Plague	165–180	Believed to be either smallpox or measles	5 M
Japanese smallpox epidemic	735–737	Variola major virus	1 M
Plague of Justinian	541–542	Yersinia pestis bacteria/Rats, fleas	30–50 M
Black Death	1347–1351	Yersinia pestis bacteria/Rats, fleas	200 M
New World Smallpox Outbreak	1520–onwards	Variola major virus	56 M
Great Plague of London	1665	Yersinia pestis bacteria/Rats, fleas	100,000
Italian plague	1629–1631	Yersinia pestis bacteria/Rats, fleas	1 M
Cholera Pandemics 1–6	1817–1923	V. cholerae bacteria	1 M+
Third Plague	1885	Yersinia pestis bacteria/Rats, fleas	12 M (China and India)
Yellow Fever	Late 1800s	Virus/Mosquitoes	100,000–150,000 (U.S.)
Russian Flu	1889–1890	Believed to be H2N2 (avian origin)	1 M
Spanish Flu	1918–1919	H1N1 virus/Pigs	40–50 M
Asian Flu	1957–1958	H2N2 virus	1.1 M
Hong Kong Flu	1968–1970	H3N2 virus	1 M
HIV/AIDS	1981–present	Virus/Chimpanzees	25–35 M
Swine Flu	2009–2010	H1N1 virus/Pigs	200,000
SARS	2002–2003	Coronavirus/Bats, Civets	770
Ebola	2014–2016	Ebolavirus/Wild animals	11,000
MERS	2015–Present	Coronavirus/Bats, camels	850
OVID-19	2019–Present	Coronavirus—Unknown (possibly pangolins)	234,000 (Johns Hopkins University estimate as of 5:32am PT, May 1, 2020)

Source (https://www.weforum.org/agenda/2020/03/a-visual-history-of-pandemics/)

region according to the report was the African region shows the least infected cases. 238 cases confirmed and 4 deaths have occurred until March 20, 2020. But the recent report issued by WHO has shown a dramatic region wise increase of infection shown in the graph below in 2021.

3 From Narrow to a Broader Concept of Security

The first section of this study highlighted he non-traditional dangers of viruses and bacteria. They killed large portions of populations in well-armed military empires like the Roman and British empires and other nation-states. These pandemics decimated populations in Europe. The current Covid-19 virus has adversely impacted public health in throughout the world since January 2020. Despite the risk from infectious diseases to human populations, impacting health, education, the economy, military, and social domains, state's power has been more consolidated compared with individual security. States' security was increased throughout the Cold War era. This was largely because of one state threatening another state (Waisova, 2003). At the same time many states realized the danger of non-traditional threats such as the deteriorating environment.

As the Cold War was ending, security threats emerged from other non-traditional sources such as the rapidly increasing HIV/AIDS, Ebola, and the outbreak of Covid-19 in 2019. Each year 14.7 million people have died from known and preventable diseases (Davies, 2008). The non-traditional threats to security at the global level killed millions more people than the wars of WW-I, WW-II, Korean War, Vietnam War, Soviet-Afghan War, and the US-Taliban War. That said, worldwide intellectual debate began to contest the concept of security. There have been many debates about the new security concept moving from state consolidation at the security level to the individual level of security.

In these debates, Buzan (1983) examined security in his book titled: 'People, Stats and Fear.' His study encouraged intellectuals to develop a new definition of security. Later, studies on security included security at political, economic, military, diplomatic and social domains. This increased the prospects of security at the individual level. Buzan believed security was an underdeveloped concept. In the new debates, Ullman (1983) debated that security encompassed non-traditional dangers, criticizing the traditional concept of security. It was then realized that non-traditional threats like the arrival of HIV/AIDS in 1981 were valid challenges to individual security.

Thus, defining national security from a military view alone was a false image of reality. Militarization of international relations have increased international insecurity. Just before the global outbreak of Covid-19, all national and international policy makers believed security was an absolute value rather than viewing it as a comprehensive definition of security (Klare, 1996).

Traditional security has dominated the political culture of the Europe since the seventeenth century (Rothschild, 1995). The Western political approach towards security mostly was defined in terms of how much protection was needed from the aggression of others. This led states to become sovereign. Thus, security was defined as freedom from threats to states' core values (Kavka, 1983).

This long shadow of Hobbes (Fidler, 2003) on international relations has been misleading us. The military protecting the national interests inside and beyond their national domains drew attention away from non-traditional threats such as decimating pandemics. During the Cold War, all Presidents of the United Sates shaped policies against the Soviet Union relative to national security. However, dangers from non-traditional threats such as pathogenic attacks have repeatedly challenged the states and they have failed to respond effectively. The current pandemic which has killed over 600,000 people in America and many others worldwide. It has become a threat to human security at national and international levels. While traditional threats to security have been easily understood, this has not been the case with nontraditional threats. Clearly, global security strategies are needed for the latter (Ullman, 1983).

The realists who influenced states' policies to make this world bi-polar and unipolar zones have failed to present the dangers of non-traditional threats. That failure became imminent when UNDP highlighted security of individuals in 1994. The report offered seven dimensions of security. They are economic, food, health, environmental, personal, community, and political security (Sehovic, 2018).

The global community, particularly in the West, has promoted a passive defense such as the invention of vaccines against the outbreak of pandemics, however, there have been no active defense such as medical drugs to destroy and otherwise control its arrival and proliferation (Densham, 2006). After the outbreak of the Asian influenza in 1957, the global community considered that the risk of infectious diseases had decreased because of the invention of vaccines to already known pathogens. In the 1980s, another infectious disease, HIV/AIDS, emerged in America. This pandemic spread and became a threat to global security (Prins, 2004). The UNSC urged the states to view non-traditional dangers to the worlds' peace and security.

Six months after the arrival of HIV/AIDS, the UNSC passed Resolution 1308 stating that the pandemic could jeopardize the world's stability and security. The danger of non-traditional threats to global peace and security has been gradually increased in the West. They have incorporated their responses in national security terms. The U.S. and many other Western states have adopted efforts to contain the outbreaks of these infections. There are other states such as those in Africa who have failed in terms of securitization to protect their citizens from the threats of HIV/AIDS (McInnes, 2006).

The U.S. adopted surveillance of diseases in the 1990s. The U.S. Department of Defense established overseas infectious disease laboratories in over 20 countries. These laboratories immediately began to respond to the outbreaks of epidemics, pandemics, and endemics. This action reflected the U.S. realization that infectious diseases had to be considered in their national security strategy. The purpose of securitizing infectious diseases had three reasons. First is the threat of bio terrorism. Second is to contain the rapid evolution and spread of infectious diseases intensified because of globalization. Third is that diseases in foreign countries threaten U.S. national security at home and abroad. Another important factor that shifts the severity of specie distribution is environmental impact. All infectious diseases have responded to climate change. The latter is a man induced, non-traditional threat to peace and security at the global level (Randolph, 2009).

4 Environment and Infectious Diseases

The reasons behind every disease come from the environment in which one lives. A doctor then can easily diagnose the patient. This shows there is a natural connection between men and the environment (Nash, 2006). For example, the people in Africa face challenges such as HIV/AIDS coming from the ecological and social environment in which they are embedded (King, 2017). The present pandemic caused by Covid-19 and past pandemics have emerged and re-emerged because of rapidly changing environments. Increasing urbanization, social process, and ecological disturbances such as the use of land and water and biodiversity loss has led to global warming and to climate change (Eisenberg et al., 2007).

There is a grand failure on the part of states while making national security strategy. For example, the leaders of Western, European, Asian areas have not fully appreciated or understood the nature of the environment in which they exist. The environment according to Einstein is “Everything that is not me,” (Southwood, 1987. P. 1086).

The impact of environmental issues from global warming to climate change on infectious diseases has become increasingly known. Further, there are scientific reasons for how spatial patterns impact infectious diseases. The tropical regions show higher biodiversity and are evidence of bio geography. Plenty of sunlight and warm conditions at low altitudes increase species diversity. High temperatures lead to shorter generation time for these species to multiply. For instance, human infectious disease is greater near the equator than at higher altitudes. The more precipitation, the more increases in infectious disease. Within this context, tropical areas, regions near the equator, altitude and latitude make the parasite relationships with the host inescapable. People migrating from one region to another have transmitted these infectious diseases. This threatens security at national and beyond domains (McMichael et al., 2006).

There is a direct relationship between the high diversity of vectors with that of the high diversity of infectious disease. Many types of mosquitoes such as dengue and malaria decline with latitude, impacting the diversity of diseases created by mosquitoes. Thus, understanding the environment helps to know about vectors and reservoirs could be key to predicting the impact of climate change on the infectious diseases in the future (Lemon et al., 2008).

The impact of seasons on humans and the pathogens was long ago highlighted by Hippocrates in his book: Airs, Waters and Places. His research examined the impact of the seasons and the differences between them. He further stated that one must study water and the cold winds because these are common to every country. He also mentioned the environmental impact on health. Epidemics have largely been caused by changes in weather. Hippocrates taught that human illnesses many times have come from changes in temperature. For example, the term ‘influenza’ comes from the word ‘influence.’ Malaria is from ‘mal’ and ‘aria,’ which means bad air. An upper respiratory infection has been noted as being ‘under the weather’ (Geller, 2001). The below figure shows how temperature impacted Malaria in Poland following WW-II. There were many patients in the summer and spring as compared to the winter season.

As soon as temperature rose in June and July, the outbreak had moved upward in Poland and elsewhere Lafferty, 2009).

The current pandemic at the global level begs the question: security for whom? There is a contrast between human security which means security of the person or individual and state security which means security of the state apparatus or territory. Mahbub ul Haqq, founder of human security, brought security of human beings as essential to the state (Gasper, 2013).

Human health has been defined by the environment where one lives. According to Bernstein, Harvard School of Public Health in the US, environmental degradation destroys natural places of wildlife. This creates an opportunity for pathogens to enter the host. Within this context, environment is a constant variable in determining human health. More than two thousand years ago, Hippocrates argued that human health was subject to the condition of the 'airs and waters,' and that the poor condition of the elements would dispose human populations to illness and pestilence. The ancient Greeks were not cognizant of pathogens and their vectors of transmission, discoveries that resulted from the 'germ theory' postulates developed in the nineteenth century. Nonetheless, Hippocrates was the first to recognize that poor environmental conditions could result in negative health consequences for humans (Price-Smith, 2008).

These physical factors have impacted wildlife and wildlife has impacted human beings. Covid-19 has been transmitted from animals to human beings because of degraded habitats. These habitats have encouraged rapid revolutionary processes and the diseases are adopting themselves to be pandemic. WHO has considered the current Covid-19 as coming from an animal. Scientists think that these could be bats and pangolins (Parry, 2020).

5 Impacts of Covid-19 on Economic Security

Infectious diseases have caused dramatic political, military, economic, diplomatic, and social implications at the global level. This is largely the result of globalization. The first human infected in China influenced the entire world. The spread of Covid-19 has hit hard one of the important element of human security that is economic factor. Previous analysis of pandemics such as SARS, MERS and the Spanish influenza has revealed important lessons regarding the global economy. For example, such pandemics decreased the demand of good services, supply chain disruption, employment and income loss. As the infection of SARS was controlled in 2003, the demand for goods and services became high. In case of Covid-19, experts have observed a dramatic fall to the economic sector and badly affected. Hopes are high that the economic security of people depends on the containment of Covid-19 (Hassan et al., 2020).

Global decrease has occurred in the context of Covid-19. Although, the current shock as co pared to the financial crisis of 2008–2009 is meager, however, some countries have faced the economic impacts of Covid-19 on their economies. Examples include: a global level decrease in terms of GDP has been expected at the rate of 7.8% which includes the United States, where IMF has revealed that the nations would face a decrease at the rate of 5.9%. In the case of European Union it has been projected at the rate of 7.5%, and the developing countries would have 2% decrease. Such a decrease has a direct relationship with economic well-being of people (IMF, 2020). The impact of Covid-19 on global GDP gas shown in the Fig. 3.

As one study indicated that 2008 and 2009 financial crisis leading to a direct impact on the economic security of the nations worldwide, but the IMF managing director discussed the recession and prospects for growth for 2020 and 2021 on March 27, 2020. She explained that Covid-19 could be worse than the 2009 recession if the virus was not contained. Thus, the global economic recession would cause many states to become bankrupt, a major indicator in assessing the erosion of societies at the global level (Georgieva, 2020) Another report released by UNDP on March 30, 2020 stated that the Covid-19 outbreak could lead to income losses which exceed more than US $220 billion in developing countries. Fifty five percent of the population of developing states had already lacked access to social protection. Similarly, another report highlighted that the world faced a global health crisis. Specifically, according to a report of the Centre for Strategic and International Relations, Covid-19 impacted China in the following sectors: (1) Manufacturing and services; (2) automobiles sank to 80 percent; (3) and exports had fallen 17.2% in January and February 2020. The pandemic had caused the largest drop in China's first quarter GDP since 1999 (United Nations Development Programme, 2020).

6 Impacts of Covid-19 on Social Security

Covid-19 has severely impacted the social sector globally. Social sectors such as health, education, poverty alleviation, water supply and sanitation, housing conditions and medical care play an integral contribution to human development. Abrupt social distancing impacted many social sectors in developing countries. Figures 1, 2, 3, and 4 shows International Labor Organization (ILO) estimates that 25 million jobs could be lost. Loss of labor income ranges from US 860 billion to US 3 to 4 trillion dollars. Other areas hit by the pandemic are small and medium enterprises, the self-employed, and the daily wages earners.

Like the great influenza of 1918 which hit only the British empire (Killingray, 2003), Covid-19 has hit all the continents of the world. This pandemic has impacted the education sector in 166 countries. Schools, colleges, and universities have been closed. Similarly, social distancing and school closures in 1918–19 were imposed (Tomes, 2010). The current pandemic has adversely affected 1.52 billion students, comprising 87 percent of the students enrolled in educational institutions. About 60.2 million teachers were forced from their classrooms. This has further impacted students' health. According to World Food Program (WFP) estimates, 320 million primary schools in 120 countries are missing schools' meals. This has also adverse

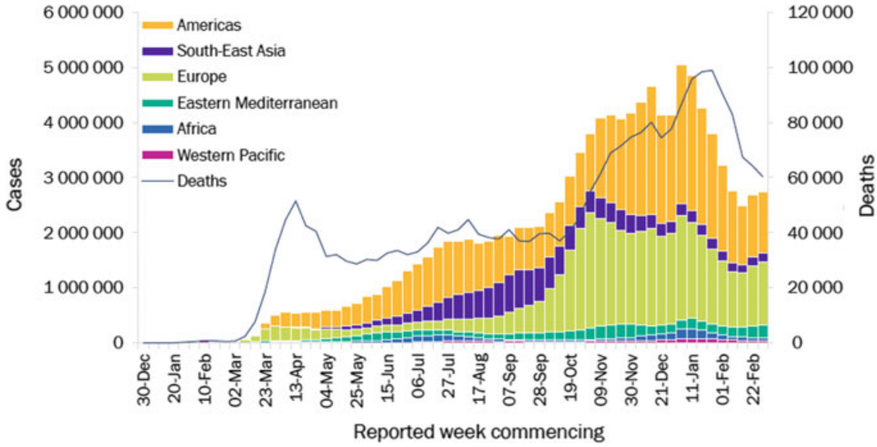

Fig. 1 Covid-19 cases reported weekly by WHO region, and global deaths, as of March 7th March 2021. *Source* https://www.who.int/docs/default-source/coronaviruse/situation-reports/20210309_weekly_epi_update_30.pdf

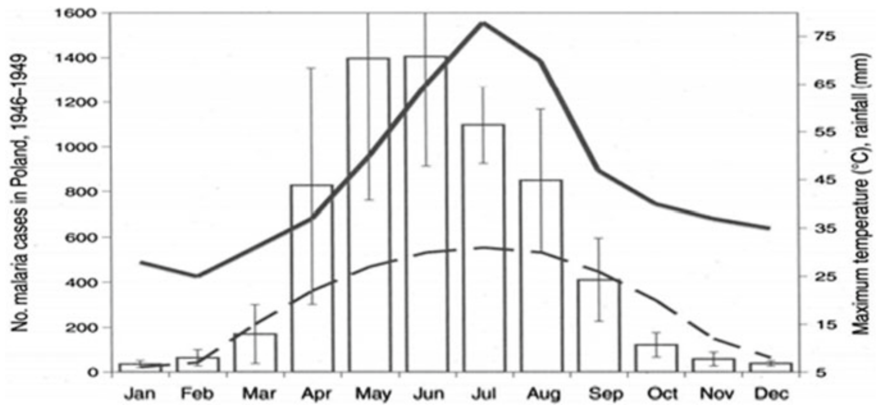

Fig. 2 Climate changes and infectious diseases (Lafferty, 2009). *Source* https://esajournals.onlinelibrary.wiley.com/doi/abs/10.1890/08-0079.1

impacts on the economies of individual countries. Many students, not able to attend classes, could lead to child labor and child marriages (Parsons et al., 2015). Figure 5 shows the impact on education at the regional and global level.

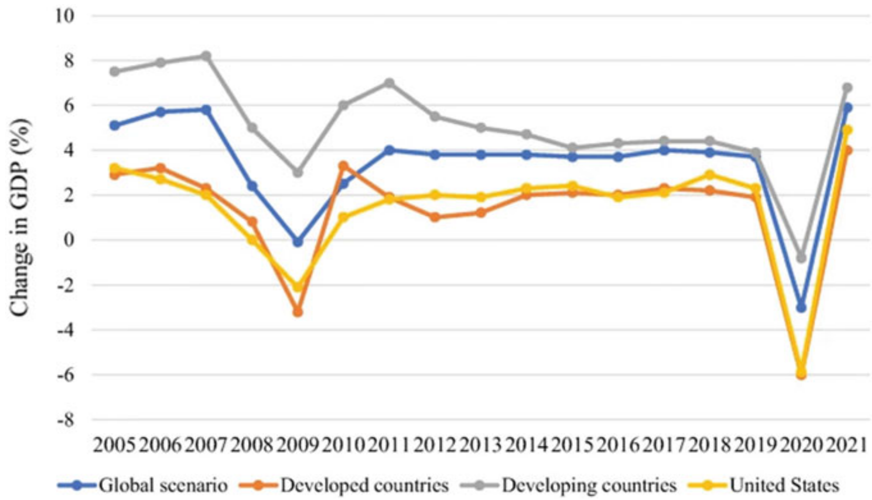

Fig. 3 Percent variation in global GDP rate from 2005 to 2001. *Source* https://pubmed.ncbi.nlm.nih.gov/33410007/#:~:text=This%20paper%20analyses%20the%20short,observed%20in%20the%20FY%202021

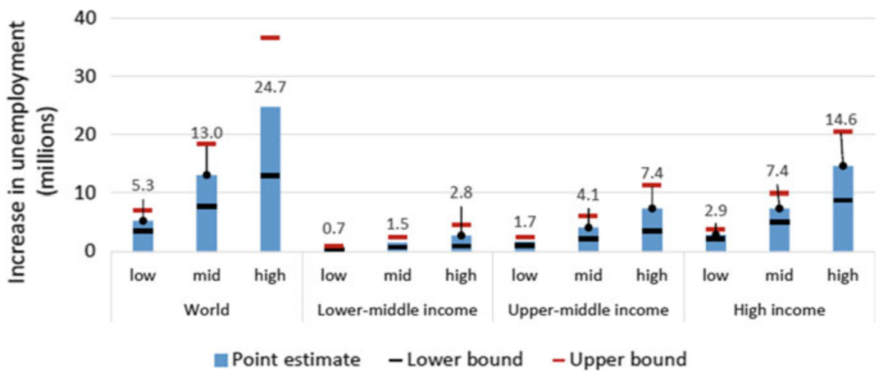

Fig. 4 Impact of decline global growth on unemployment based on three scenarios, World, and Income Group. *Source* https://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/documents/briefingnote/wcms_767028.pdf

7 Challenges to the Global Distribution of Military Forces

To maintain peace and security, the UN Peacekeeping and NATO forces are distributed in the conflict zones and maritime domains. This force distribution is part of the WW-II security order under the mandate of the United Nations charter. However, the Corona virus pandemic devastation and its highly contagious features

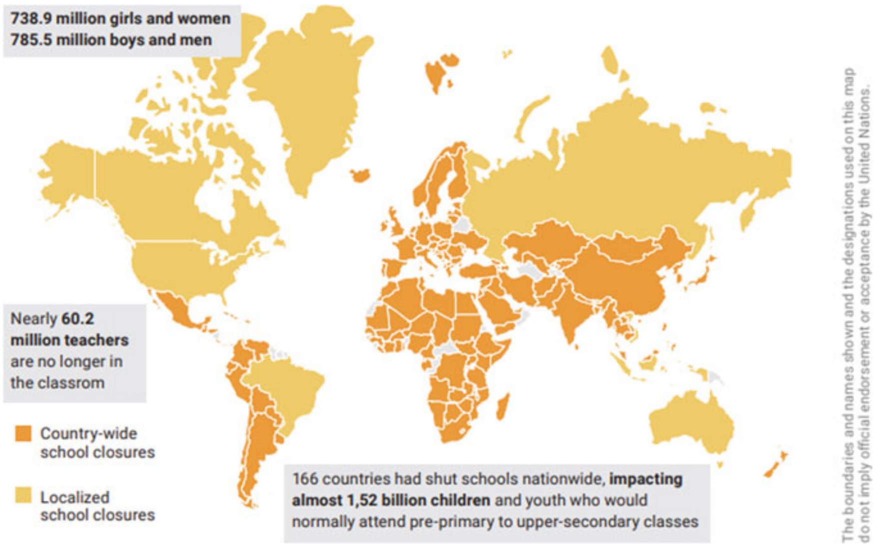

Fig. 5 Countries affected by school closure until March 26, 2020. *Source* https://data.unicef.org/wp-content/uploads/2021/03/COVID19-and-school-closures.pdf

have impaired the UN-Peacekeeping mission's goals. The Department of Peace Operations and the Department of Peace Support, including the division of the Health Care Management and Occupations Safety and Health, has announced the revision of the schedule for next six months. In the meantime, US troops are engaged in many conflicts with other nations around the world. Covid-19 has reached US operational bases at sea and beyond. For example, the USS Theodore Roosevelt reported that many sailors had been infected. While the US Department of Defense issued a plan amid the outbreak to protect the force, there are national interests to protect. Four U.S aircraft carriers and their staffs are patrolling the oceans. In addition, there are U.S. Marine Corps amphibious strike groups afloat, as well as 67,000 air force and 155,0000 army personnel stationed overseas (Hamilton, 2020). These military are deployed to fight a wide range of threats at sea such as piracy and terrorism, however, the current situation provides challenges such as Iran, China, and Russia.

8 Conclusions

The current study finds that security of the people is still an underdeveloped concept, For example, in the case of Covid-19 it swept across the globe, infecting millions and killing over thousands worldwide. While the UNDP report considered individual health as one of the dimensions of human security, both developing and developed states have not consolidated public health security. Weak state health policies have too often resulted in economic crise as is now occurring.

Despite devastating pandemics in the past such as the great influenza at the end of WW-I, HIV/AIDS at the end of the Cold War to date, the Asian Flu, Black Death in Europe and beyond, there has been little attention on the part of political scientists and leaders to deliberate these pandemics as important to human security. For example, Hobbes and notably Morgenthau theorized state power as the immediate threat to other states, thus making states as the object of security. Infectious diseases, however, snatches millions of lives and has been of low priority until the present Covid-19 pandemic.

There is always both dependent and interdependent relationships between the environment and infectious diseases. This means that the environment has become another dimension of security, threatening life on earth. It is a two-level threat. First, climate change has changed species distribution across the continent releasing many types of pathogens adversely affecting the human population. As an example, Covid-19 has reached human populations from wet markets where animals are sold for food purposes. Second, floods, deforestation, droughts, increases in temperature, and changes in air direction have impacted habitats, resulting in the migration of animals from one place to another.

Without suitable environment and public health security, the level of global security decreased. For example, international financial regimes such as the IMF, World Bank, Asian Development Bank all have belled alarm of recession from now Covid-19 has hit us. Moreover, the traditional security dimensions of the nations-state-system has hit hard by non-traditional danger such as the current pandemic at the strategic and non-strategic domains. For example, strategically, Covid-19 has impaired the UN Peace-Keeping mission in the conflict ridden to maintain peace-making and peacebuilding. Second, the US troops dispersed around the world for monitoring security of their strategic partners and friendly states impacted by the current pandemic. Consequently, the US and its strategic rivals are entangled in new strategic competitors such as China, Iran, and Russia.

The current study finds both strategic and non-strategic impacts. The most devastating impact of the current pandemic is the danger to social indicators such as economics. For years, all state and non-state agencies have employed social accounting to evaluate the advantages and disadvantages of states' diverse social, economic, and military programs and resultant supply chain disruption. This scenario could lead to restructuring their evaluations and assessments after the current outbreak subsides.

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Effective Resilience Strategy for the Urban Poor During Coronavirus Crisis

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Abstract The coronavirus disease 2019 (COVID-19) pandemic has evolved from a health crisis into a humanitarian and economic one. The most vulnerable community is the urban poor with high sensitivity in income, unemployment, and costs of living. This study examined the role of public agencies, inclusive networks, and local leaders in restoring the resilience of individuals and families in an urban poor community in the face of the COVID-19 pandemic and economic downturn. The target respondents of this study are the heads of households (HOHs) living in low-cost apartments. The total sample size was 325 HOHs equally stratified in five blocks of low-cost apartments. The structured adapted survey questionnaires, which measure the resilience of individuals and households and the engagement of public agencies, local leaders, and inclusive networks, were validated and tested for reliability. Smart partial least squares structural equation modeling was used to analyze the effect of the engagements of public agencies, local leader efforts, and inclusive networks on the resilience of urban poor community. This study found that inclusive networks and local leaderships have remarkable effects on restoring individual and household resilience. However, empirical evidence shows that confidence on the delivery of public agencies is not strong enough in supporting the resilience of individuals and households from the urban poor community. Designing intervention and recovery strategies specially tailored to the needs of individuals and households is an effective mechanism to protect and secure the resilience of the urban poor community.

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1 Introduction

The outbreak of severe acute respiratory syndrome (SARS) coronavirus-2 (SARS-CoV-2) in Wuhan, People's Republic of China has affected the world. This virus, which was initially called 2019-nCoV but later renamed by the World Health Organization (WHO) as SARS-CoV-2, causes the coronavirus disease (COVID-19) and various symptoms similar to those of SARS, which previously plagued the world (Ahmadi et al., 2020; Susilo et al., 2020). The virus attacks the respiratory system of people of all ages and endangers individuals with comorbidities. By May 10, 2021, COVID-19 has affected 157.3 million cumulative cases worldwide and caused 3.3 million deaths with a case fatality rate [CFR] of 2.1%, and only 1.2 million was vaccinated (WHO, 2021). Currently, the third-wave spread of COVID-19 is increasing once again because the virus mutation, SARS-CoV-2 VUI 2020/12/01, which is highly contagious (Burki, 2021). ASEAN countries had 3,508,491 confirmed cases by May 6, 2021. COVID-19 in this region spread mainly in Indonesia, with 1,697,305 confirmed cases and 46,496 deaths. Indonesia accounts for 48.38% of the total confirmed COVID-19 cases in ASEAN countries, whereas other countries, such as the Philippines (1,080,172), Malaysia (427,927), and Thailand (76,811), have fewer cases. In terms of CFR, Indonesia leads with 2.7% compared with the Philippines (1.7%), Malaysia (0.40%), and Thailand (0.4%) (ASEAN Biodiaspora Virtual Center, 2021).

Every country has its own recovery strategies and intervention programs to protect and secure their communities. Malaysia has imposed full and partial lockdown with movement control order to prevent COVID-19 transmission. The COVID-19 pandemic has evolved from a health crisis into humanitarian and socioeconomic ones (Lim, 2020). The urban poor communities are the most vulnerable to the economic downturn caused by the COVID-19 pandemic with high sensitivity in income, unemployment, and costs of living (Chinn et al., 2020; EU, 2017; Kalantari, 2021; Romero-Lankao et al., 2016). Mitigating and strengthening community resilience have been examined from various dimensions, such as disaster management (Ainuddin & Routray, 2012; Clark-Ginsberg et al., 2020; Zhong et al., 2020), climate change (Janssen & Ostrom, 2006; Jurjonas & Seekamp, 2016; UN-HABITAT, 2020), energy resources (Doost et al., 2020), and tourism (Cheer et al., 2019). Similarly, studies on community resilience at the global scale (UNISDR, 2015) or at the national level, such as in Norway (Scherzer et al., 2019), Turkey (Doğulu et al., 2016), Chile (Moreno et al., 2018), and Malaysia (Amir Zal, 2018), include the resilience of rural (Jurjonas & Seekamp, 2016; Wilson, Hu, et al., 2018; Wilson, Schermer, et al., 2018) and urban communities (Ahmed, 2016; Rangwala et al., 2018). On the basis of the studies of Quinn (2008), Chandra et al. (2010), Allmark et al., (2014), Kimhi et al. (2020) on community resilience in public health, the present study sought to identify individual and family resilience in the face of the COVID-19 pandemic. This study also examined the engagement of public agencies, local leaders, and networks in restoring the resilience of individuals and families from urban poor communities.

2 Community Resilience Concept

The concept of resilience has been used in engineering to describe the behavior of an object or system to recover after experiencing stress (Hosseini et al., 2016; Norris et al., 2008). This concept has been later used in the fields of psychology and ecology (Alexander, 2013) and subsequently in health, food safety, community planning, and disaster management (Xu et al., 2015), as well as in policy making (Danar & Pushpalal, 2014; Davoudi et al., 2012; MacKinnon & Derickson, 2013; Sharifi, 2016). The term "resilience" is rooted in the Latin word *resilio* or *resilire*, which means "to jump back" or "to bounce back" (Nguyen & Akerkar, 2020). Holling (1973) first defined resilience as the ability of a system to manage or cope with change. Walker et al. (2004) defined resilience as the capacity of a system to absorb interference and reset [itself] when it changes to maintain its function, structure, identity, and feedback. Berkes and Folke (1998) stated the system in which humans must be considered a part of nature. Social–ecological system interdependence and co-evolution exist in many individual levels up to a global scale. The United States Agency for International Development (2012), Intergovernmental Panel for Climate Change (2014), and the United Nations (2016) indicate that resilience is the ability of individuals, households, communities, countries, and systems (economic, social, and environmental) to resist, reduce, adapt, restructure, recover, and perform transformation as a result of shock and stress from something particularly catastrophic (Danar & Pushpalal, 2014; McCrea et al., 2014). Walker et al. (2004), Folke et al. (2010) distinguished three aspects of resilience: the capacity to sustain systemic shocks while preserving existing functions and structures; the capacity to face challenges, such as uncertainty and shock, through renewal, reorganization, and learning in the current situation (adaptability); and the capacity to be transformed due to radical changes in the nature of the system (transformability). These aspects of resilience clarify the need for diverse actions at the individual, community, and institutional levels for the system to remain "dynamically stable." The concept of resilience is closely related to adaptive relationships and learning in community livelihood systems that focus on feedback, nonlinearity, uncertainty, scale, updating cycles, drivers, system memory, event jams, and windows of opportunity (Berkes & Ross, 2013).

3 Fostering Community Resilience

In the context of this study, we emphasize how individuals and their family adapt, act, and utilize public agencies, networks, and leadership supports to revitalize and strengthen resilience. Parsons et al. (2016) cite the responsibility of government agencies to prepare for emergencies and build the knowledge and skills the community need to cope and adapt to the current situation. The government and its agencies are committed to formulating initiatives, strategies, and actions; determining priorities; and channeling funding allocations to protect and restore community resilience

(Barrow Cadbury Trust, 2012; Longstaff et al., 2010). Anticipating, assessing, managing, and recovering from disaster risk are responsibilities of government agencies (Runtunuwu et al., 2018; Sharifi, 2016). Government agencies have a role to play in ensuring that each program can be implemented efficiently through active, transparent, and accountable participation for the benefit of the community (Alshehri et al., 2015). Thus, the governance of these government agencies shapes the capabilities of individuals and households in adaptive communities (Baker & Refsgaard, 2007; Holman & Trawick, 2011; Castleden et al., 2011; Leykin et al., 2015) and drives the communities involved toward disaster recovery planning (Danar & Pushpalal, 2014; Pfefferbaum et al., 2015). Berkes and Ross (2013) believed that along with collaborative government support to recovery, people need self-organization, knowledge and learning, effective community leaders, and social networking. Nurturing human capital (knowledge, skills, talents, positive attitudes, and education) has been an empirical proof that contributes to resilience (Fletcher et al., 2020; Peacock et al., 2010; Speranza et al., 2014; UNDP, 2014). Continuous learning will improve individual competencies to sustain the employability of individuals and households in urban poor communities (Ashmawy, 2021). Lockwood et al. (2015) found that government agencies are inefficient in cultivating the adaptive capacity of communities at risk. Additionally, Moreno et al. (2018) found shortcomings and delays in the delivery of support and information in response to fishing communities. Therefore, confidence in the initiatives of public agencies has a positive direct effect on individual (H1) and household resilience (H2). Concurrently, trust on public agencies has a positive indirect effect on growing household resilience (H3).

Other studies (Aldrich & Kyota, 2017; Pfefferbaum et al., 2015) have indicated that community resilience can increase the social capital connections between individuals, which allows them to work collectively, share norms, and exchange information more easily. Technology and communications are an important aspect of community adaptation (Smit & Wandel, 2006). A certain amount of knowledge and skills gained from various sources of information through mass media and direct dissemination increase the capacity of individuals and communities (Brown & Westaway, 2011). In addition, community resilience can be influenced by resources that operate through access to inclusive information (Cuello-Garcia et al., 2020; Phillips, 2003). Community resilience can be realized by collective participation in community information dissemination and awareness action (Burnside-Lawry & Carvalho, 2016; Guo et al., 2018; Paton et al., 2001). Therefore, this study hypothesized that inclusive networks have a positive direct effect on individual (H4) and household resilience (H5), similarly, this study predicted that inclusive networks have a positive indirect effect (H6) on household resilience.

In the face of disasters, the commitment of political and local leadership, including strong and quality local leaders, is essential to set goals and actions to reduce the impact of disasters (Leykin et al., 2015; Sharifi & Yamagata, 2016; Wilson, 2012). Community confidence and trust in leaders, as well as the competence of leaders in managing disasters, can minimize the impact of disasters (Rangwala et al., 2018; Ridzuan et al., 2014; Wongbusarakum & Loper, 2011). However, Wilson, Hu, et al.

(2018), Wilson, Schermer, et al. (2018)) showed the opposite result in community resilience. Communities that actively support political leaders are less likely marginalized (Morrow, 2008), and communities with less involvement in local politics are more vulnerable to risks and threats (Wilson, Hu, et al., 2018; Wilson, Schermer, et al., 2018). Pfefferbaum et al., (2015) and Jones (2019) asserted that effective leaders are a resource that communities could discuss and seek help with to improve the difficulties faced during disasters. Doğulu et al. (2016) and Kimhi et al. (2020) proved that leaders who are biased toward political considerations fail to build the resilience of overall community members. In conclusion, an effective leader has a positive direct effect on individual (H7) and household resilience (H8) and also has indirect effect on household resilience (H9). Sustaining the resilience of the heads of households (HOHs) in an urban poor community with normally low education and single income is highly important. Therefore, this study predicted that HOHs' resilience has remarkable effects on household resilience (H10).

4 Methodology

4.1 Site Location, Population, and Sample Size

Having affordable houses in the city facilitates access to quality employment, education, health, and social services (UN-Habitat, 2020). Home ownership also shapes individual and community life in terms of the physical, economic, social, and psychological dimensions of quality of life (Nooriah, 2019; Nurizan, 1998), as well as well-being (Dzul Ashrai & Hamzah, 2017). Therefore, the urban bottom 40% (B40) income group who earn less than RM 3,000 a month and squatters have been relocated through the People's Housing Program (JPN, 2020; Sidal et al., 2019). HOHs living in low-cost apartments are the target population of this study. The HOHs (1,525 people) in the selected study area comprised Malays (97.0%), Chinese (2.0%), Indians (0.7%), and other races (0.5%). According to Krejcie and Morgan (1970) and Yamane, the minimum sample size is between 307 and 316 HOHs. We equally stratified the sample size of 325 HOHs from five blocks of low-cost apartment.

4.2 Instrument Design, Validation, and Reliability

We adapted five items from Lockwood et al. (2015), Kimhi et al. (2020), Marshall and Marshall (2007), and Ruvalcaba-Romero et al. (2015) to measure individual self-resilience in the COVID-19 situation. Items under household/family resilience contains six statements that subjectively measure household resilience in the face of the COVID-19 pandemic, which were adapted from past research (Jones & Tanner, 2017; Marshall & Marshall, 2007; McCrea et al., 2015; Noerhidajati et al., 2021).

Seven statements from American Red Cross (2013), Pfefferbaum et al., 2015, and Jones et al. (2018) were used to measure political leader support to the urban poor community during the pandemic and economic stress. The function of government agencies was measured in terms of the efficiency of service delivery and the support provided to the urban poor community based on prior research (American Red Cross, 2013; Kimhi et al., 2020; Leykin et al., 2015; Lockwood et al., 2015; Pfefferbaum et al., 2015). Guided by Jones et al. (2018), American Red Cross (2013), and McCrea et al. (2015), six statements were constructed to measure the respondents' perceptions of the inclusive information disseminated during the pandemic. The researchers in the present work distributed the questionnaires from December 2020 to January 2021 through Google Form and assisted by the residents committee by door-to-door drop and pick.

The structured survey questionnaires were validated and tested for internal reliability. We conducted a pilot study with 75 respondents. We also identified the composite reliability for individual resilience, family/household resilience, adaptive talent, and inclusive networks using partial least squares structural equation modeling (PLS-SEM) analysis (Hair et al., 2012, 2017). We found a reliability (Cronbach's alpha) between 0.86 and 0.90, which is considered excellent (Pallant, 2010). Hair et al. (2013) and Kwong-Kay Wong (2013) proposed that composite reliability should be more than 0.70. The composite reliability and Cronbach's alpha were greater than 0.80 and exceeded the minimum acceptable values; thus, they proved the good internal consistency for each latent construct (Table 2 in Appendix A). Most of the outer loadings of the items were more than 0.70, which is considered good and reliable (Hair et al., 2012; Kwong-Kay Wong, 2013). A factor loading greater than 0.50 was used as the criterion to select a statement into a factor (Hair et al., 2013). Chin (1998) pointed out that loads of at least 0.50 are acceptable.

The Fornell–Larcker criterion was used to determine discriminant validity (Anderson & Gerbing, 1988; Hair et al., 1998, 2017; Yang & Jolly, 2009). The square roots of the average variance extracted (AVE) were compared with those of the other constructs below the diagonal in Table 3 (Appendix B). These statistics suggest that each construct is stronger in its own measurement than in the measurement of another construct (Hair et al., 2012). Moreover, the square root of the AVE between each pair of factors was higher than the correlation projected between factors, and therefore ratifies its discriminant validity. The statistics suggest that the elements of our measurements are reliable, internally consistent, and have discriminant validity. Table 3 (Appendix B) shows the discriminant validity of the construct. The comparison of the cross loadings in Table 4 (Appendix C) shows that the loadings of an indicator are higher than the other loadings for its construct in the same column and row. Furthermore, the results indicate that discriminant validity exists among all the constructs on the basis of the loadings depicted in Table 4 (Appendix C).

Fig. 1 Individual and household resilience structural model

4.3 Data Analysis and Model Verification

A combination of multiple regressions and Smart PLS-SEM will be ideal for data analysis to assess the effect of adaptive talent and inclusive networks on the resilience of urban poor community. We used the Smart PLS statistical methods to take advantage of the cross-sectional data (Hair et al., 2014; Kwong-Kay Wong, 2013) to identify the direct and indirect effects of adaptive talent and inclusive networks on individual and household resilience. Smart PLS was considered as suggested by Hair et al. (2012), Hair et al., (2014), and Hair et al. (2017). We also used percentages and means to describe individual and household resilience. Smart PLS 3.0 was used to examine the structural model and hypothesis (Hair et al., 2017). Path estimates and t-statistics for the hypothetical relationships were calculated using a bootstrapping technique with a resampling of 1,000. The structural model (Fig. 1) shows the relationship between one variable and another variable with beta (β) and R-squared (R^2) values. The strength relationships between the variables were expressed through R^2 values. The results showed that the R^2 for individual resilience was 0.23, and the R^2 for household resilience was 0.51. The R^2 value of household resilience could be explained or influenced by 51.1% of the public agencies' engagement, leadership supports, inclusive networks, and individual resilience; and the rest (48.9%) were influenced by other factors outside this model. According to Chin [99], $R^2 > 0.33$ is moderate. Therefore, the result showed that the R^2 value was moderate (Fig. 2).

5 Urban Poor Profile and Housing

This study involved 51% male HOHs, and the rest were females (49%). The majority of HOHs (41%) were 31–40 years old, 26% were 41–50 years old, 20% were ≥51 years old, and less than 20% were 18–30 years old. The HOHs comprised mostly Malays (75%), followed by Indians (12%) and Chinese (7%). Most of the HOHs had education up to secondary school (68%). Only a few HOHs had higher

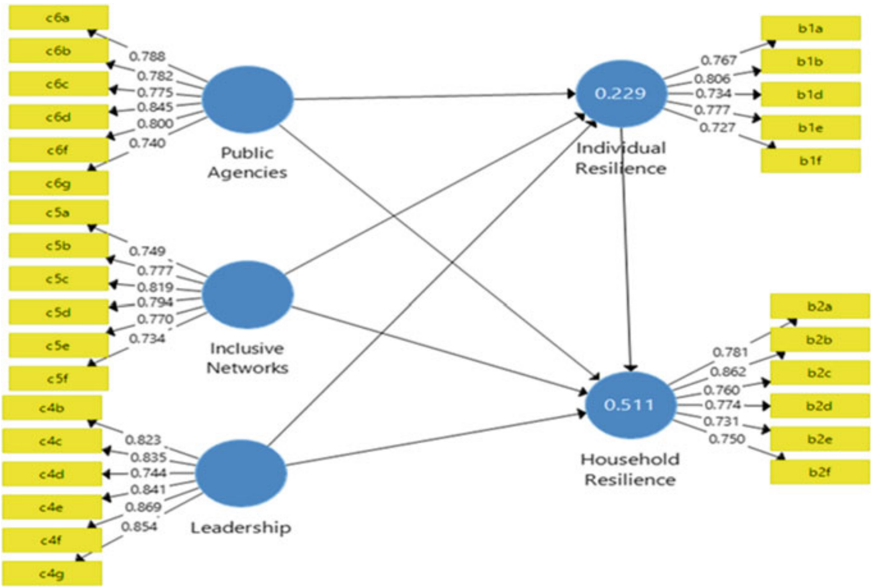

Fig. 2 Model fitness—loading factor and R^2

education at the diploma (9%) and degree (5%) levels. In terms of the number of household members, 42% have 3–4 family members, 29% have a household of 5–6 people, and 22% have 1–2 members. The number of households with more than seven people is small at <7%. Prior to moving into these low-cost apartments, many lived in rental houses (57%) and family homes (34%), and some lived in squatter areas (9%).

6 Urban Individual and Family Resilience

Resilience can be measured as the ability to recover, withstand, avoid, or adapt to the negative effects of economic shocks (Angulo et al, 2018; Briguglio et al, 2006). The study found that 23.8% of HOHs were not financially sufficient to manage their current life, and 17.9% could not manage their property well. Furthermore, 12.8% faced transportation constraints to work, and 13.1% stated that their existing skills were unable to keep their current employment. However, 76.3% stated that they did not give up during the pandemic, and 59.6% were optimistic that these difficulties could be resolved. More than half (57.7%) could use their knowledge to obtain and maintain employment. In terms of household resilience, 51.0% stated that their household income was sufficient for their family's nutritional needs. Furthermore, 51.9% agreed that their household income was sufficient to pay bills, and 57.1% were still satisfied with their family members' employment. Moreover, 60.9% were confident that their household member could adapt during the current economic and pandemic hardships. However, 24.7% indicated that their family members have inadequate savings to survive, and 17.6% felt that their household income cannot sustain family life expenses.

Before the spread of the COVID-19 pandemic, the majority of HOHs worked in the private sector (61%), 25% were self-employed, and 3.5% worked in the public sector. Only 10% of HOHs do not work. During the COVID-19 pandemic, we found that those employed in the private sector decreased to 59%, the self-employed increased to 26%, and the unemployed increased to 12%. Wilcoxon test showed that the employment pattern before and during the pandemic differed significantly ($Z = 2.36$, $p < 0.05$). Clearly, COVID-19 gradually affected the employment opportunities, especially for those working in the private sector. The number of households who worked before and during the COVID-19 pandemic also differed significantly ($Z = 3.00$, $p < 0.001$). Approximately 52% of the HOHs stated that 1–2 family members worked before the pandemic, and this rate declined to 50% during the pandemic. Moreover, as many as 43% stated the existence of unemployment in family members during the COVID-19 pandemic compared with the 39% before the pandemic. Before the outbreak of COVID-19, the majority of HOHs (35%) had a gross monthly income between RM 1,500 and RM 2,000, and 22% had a monthly income between RM 2,001 and RM 2,500. During the pandemic, those who were earning between RM 1,000 and RM 1,500 decreased to 15%, whereas those earning less than RM 1,000 were 11%. Moreover, 13% earned RM 2,501–3,000, and 3.8% earned RM 3,001–3,860. Wilcoxon test was performed to examine the income differences of HOHs before and during the COVID-19 pandemic, and the results showed a significant difference ($Z = 6.60$, $p < 0.001$). The proportion of HOHs with a monthly income of RM 1,000–1,500 rose to 18%, and those earning less than RM 1,000 increased to 16%. The HOHs with a monthly income of RM 1,501–2,000 decreased to 32%, and those with an income of RM 2,001–2,500 also decreased to 20%.

7 Recovery Strategy and Effects

A combination of adaptive talents embedded in human capital and inclusive networks as a social and technological capital will drive individual and household recovery in urban economic livelihood (Rose, 2004; Dinh & Pearson, 2015; Dinh et al., 2017). The urban poor needs to absorb, adapt, cope, and plan for recovery actions because of the economic uncertainty brought by the COVID-19 pandemic shock. We tested the hypothesis that public agencies' initiatives and support have a positive and remarkable effect on individual (H1) and household resilience (H2). The results showed that public agencies' function had no significant effects on individual resilience ($\beta = 0.03$, $p > 0.05$) and household resilience ($\beta = -0.08$, $p > 0.05$). Overall, public agencies are not well effective in cultivating community resilience in this area ($\beta = -0.07$, $p > 0.05$). Conversely, inclusive networks led to significant and positive direct effects on individual resilience ($\beta = 0.28$, $p < 0.01$) but not on household resilience

($\beta = -0.03$, $p > 0.05$). Inclusive networks had indirect significant effects ($\beta = 0.17$, $p < 0.01$) in cultivating the urban poor community in this area. We also tested the role of community leadership in the generation of urban poor resilience. Empirical evidence showed that community leadership had a positive direct effect on individual resilience ($\beta = 0.24$, $p < 0.01$) and household resilience ($\beta = 0.24$, $p < 0.01$). Leadership also had indirect effects on household resilience ($\beta = 0.15$, $p < 0.01$). This result highly recognizes that nurturing individual resilience among the urban poor had a strong significant effect on urban household resilience ($\beta = 0.64$, $p < 0.001$). Overall, leadership had substantial direct effects on individual resilience and indirect effect on household resilience, whereas inclusive networks had considerable direct effects on individual resilience and indirect effects on household resilience (Table 1) (Fig. 3).

8 Conclusion and Policy Recomendation

The first outbreak of the COVID-19 pandemic initiated the gradual downturn of the economy. The full and partial lockdown with strict movement control, which were implemented to prevent COVID-19 transmission, have evolved the public health crisis into humanitarian and economic ones (Lim, 2020; WHO, 2021). Urban economic activities and employment have been affected. Therefore, urban poor communities with relatively limited socioeconomic capacity and capability are highly vulnerable. This study identified individuals' and households' resilience in the face of the COVID-19 pandemic and analyzed the engagement of public agencies, inclusive networks, and local leaders in restoring the resilience of individuals and households from urban poor communities. We stress that HOHs are individuals that play important roles to sustain their families' resilience. Thus, in line with Walker et al. (2004), Folke et al. (2010), and Berkes and Ross (2013), we found that people need to self-organize and learn to enhance knowledge and skills to recover from economic shocks during the COVID-19 pandemic as expected by Azevedo and Terra (2009) and Clarke (2015). Empirical evidence also showed that talented local leadership and inclusive networks have a positive effect in curing individuals' and households' resilience. Urban poor communities have received useful information of future risks, and the local government well functions to keep the community informed. The community has access to internet line to explore possible job vacancies and news. As mentioned by Aldrich and Kyota (2017) and Huang et al. (2020), community resilience is enhanced by social capital connections; the neighborhood in this community provides information about what to do and keeps people informed about the latest circumstances. Hence, collective efficacy and action in urban poor communities will produce the desired recovery and success of the community as emphasized by Bandura (2000) and Sampson (2012). Furthermore, confidence in public agencies' initiatives needs to be strengthened by designing interventions and recovery strategies that are specially tailored to the needs of individuals and households from the urban poor community.

Table 1 Direct and indirect effects of public agencies, networks and leadership

Direct effect	β	Standard deviation (SD)	t statistics	p values	Hypothesis
Public agencies→individual resilience	0.029	0.072	0.398	0.691	Rejected (H1)
Public Agencies→household resilience	−0.088	0.055	1.617	0.106	Rejected (H2)
Inclusive networks→individual resilience	0.276	0.073	3.763	0.000	Supported (H4)
Inclusive networks→household resilience	−0.033	0.051	0.658	0.511	Rejected (H5)
Leadership→individual resilience	0.238	0.068	3.485	0.001	Supported (H7)
Leadership→household resilience	0.242	0.055	4.376	0.000	Supported (H8)
Individual resilience→household resilience	0.634	0.037	17.153	0.000	Supported (H10)
Specific indirect effect					
Public agencies→individual Resilience→household resilience	0.018	0.046	0.396	0.692	Rejected (H3)
Inclusive networks→individual Resilience→household resilience	0.175	0.049	3.594	0.000	Supported (H6)
Leadership→individual Resilience→household resilience	0.151	0.043	3.468	0.001	Supported (H9)
Total effects					
Public agencies→household resilience	−0.070	0.074	0.956	0.339	No effects
Inclusive networks→household resilience	0.142	0.064	2.203	0.028	–
Leadership→household resilience	0.393	0.064	6.114	0.000	Complementary mediation

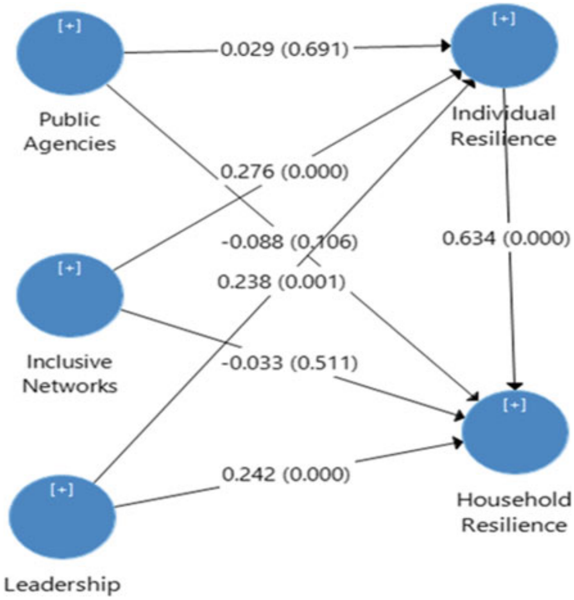

Fig. 3 Path analysis of individual and household resilience

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Appendix A

See Table 2.

Appendix B

See Table 3.

Appendix C

See Table 4.

Table 2 Research instrument design, reliability and validity

Construct and item	Code	Loading	Cronbach's alpha	Composite reliability	AVE
Individual resilience		–	0.821	0.874	0.582
Able to manage property well	b1a	0.767	–	–	–
Sufficient financial resources to manage current life	b1b	0.806	–	–	–
Adequate skills to maintain current job	b1d	0.734	–	–	–
Sufficient knowledge to manage the job	b1e	0.777	–	–	–
Confident to overcome current difficulty	b1f	0.727	–	–	–
Family/household resilience		–	0.869	0.901	0.604
Sufficient household income for food	b2a	0.781	–	–	–
Satisfied with income for living expenses	b2b	0.862	–	–	–
Adequate household income to pay necessities	b2c	0.760	–	–	–
Satisfied with family members' employment	b2d	0.774	–	–	–
Family can adapt during current hardship	b2e	0.731	–	–	–
Adequate family saving to survive	b2f	0.750	–	–	–
Leadership		–	0.908	0.929	0.686
Rely on our local leader for support/help	c4b	0.823	–	–	–
Effective leader that carry out his/her duties	c4c	0.835	–	–	–
Support/help from our local leader	c4d	0.744	–	–	–
Communicates with our local leader to improve difficulties	c4e	0.841	–	–	–

(continued)

Table 2 (continued)

Construct and item	Code	Loading	Cronbach's alpha	Composite reliability	AVE
Confident with the local leader to lead recovery	c4f	0.869	–	–	–
Leader will make the right decisions	c4g	0.854	–	–	–
Inclusive networks		–	0.868	0.900	0.600
Always receive useful information of future risks	c5a	0.749	–	–	–
Internet line is easily accessed	c5b	0.777	–	–	–
Local government keeps community informed	c5c	0.819	–	–	–
Always communicate to help family and work life	c5d	0.794	–	–	–
Community keeps people informed latest circumstance	c5e	0.770	–	–	–
Neighborhood provides information what to do	c5f	0.734	–	–	–
Public agencies		–	0.879	0.908	0.622
High confidence in officials from government agencies	c6a	0.788	–	–	–
Confidence in government agencies to do the right thing	c6b	0.782	–	–	–
Confidence in the health care system to deal with the crisis	c6c	0.775	–	–	–
Confidence in government agencies to overcome the current crisis	c6d	0.845	–	–	–
Local authorities/councils in my area work well	c6f	0.800	–	–	–
Community works with government agencies in resolving an issue	c6g	0.740	–	–	–

Table 3 Fornell–Larcker criterion

Latent variable	Household resilience	Inclusive networks	Individual resilience	Leadership	Public agencies
Household resilience	0.777	–	–	–	–
Inclusive networks	0.337	0.774	–	–	–
Individual resilience	0.692	0.434	0.763	–	–
Leadership	0.435	0.595	0.419	0.829	–
Public agencies	0.240	0.544	0.320	0.594	0.789

Table 4 Item cross loading analysis

Item	Household resilience	Inclusive networks	Individual resilience	Leadership	Public agencies
b1a	0.510	0.261	**0.767**	0.253	0.132
b1b	0.679	0.260	**0.806**	0.342	0.205
b1d	0.441	0.348	**0.734**	0.225	0.240
b1e	0.441	0.460	**0.777**	0.352	0.296
b1f	0.531	0.339	**0.727**	0.404	0.343
b2a	**0.781**	0.247	0.617	0.306	0.126
b2b	**0.862**	0.212	0.622	0.310	0.173
b2c	**0.760**	0.244	0.476	0.389	0.279
b2d	**0.774**	0.286	0.482	0.318	0.138
b2e	**0.731**	0.253	0.483	0.291	0.187
b2f	**0.750**	0.341	0.520	0.426	0.232
c4b	0.394	0.490	0.325	**0.823**	0.483
c4c	0.389	0.481	0.369	**0.835**	0.509
c4d	0.308	0.434	0.358	**0.744**	0.383
c4e	0.365	0.496	0.363	**0.841**	0.480
c4f	0.347	0.533	0.328	**0.869**	0.532
c4g	0.353	0.521	0.340	**0.854**	0.562
c5a	0.242	**0.749**	0.348	0.366	0.353
c5b	0.262	**0.777**	0.322	0.428	0.405
c5c	0.373	**0.819**	0.423	0.564	0.490
c5d	0.165	**0.794**	0.273	0.440	0.410
c5e	0.177	**0.770**	0.292	0.408	0.421
c5f	0.274	**0.734**	0.304	0.513	0.424

(continued)

Table 4 (continued)

Item	Household resilience	Inclusive networks	Individual resilience	Leadership	Public agencies
c6a	0.162	0.383	0.242	0.445	**0.788**
c6b	0.222	0.380	0.314	0.435	**0.782**
c6c	0.188	0.385	0.255	0.456	**0.775**
c6d	0.169	0.480	0.211	0.448	**0.845**
c6f	0.210	0.476	0.270	0.546	**0.800**
c6g	0.167	0.491	0.187	0.479	**0.740**

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Budget Deficit Sustainability of Selected Developed and Developing Countries During Covid-19 Pandemic

Findik Ozlem Alper, Ali Eren Alper, and Gurcem Ozayturk

Abstract The sustainability of budget deficits is one of the determining factors regarding the sustainability of economic policies. Nevertheless, the Covid-19 pandemic, which has been effective all over the world since the first days of the year 2020, caused a rise in the public expenditures of countries, whereas a decline in public revenues, and hence, budget deficits. Based on the intertemporal budget constraint approach, this study aims to investigate the sustainability of the budget deficit in the G-7 countries as well as the selected developing countries, including Brazil, Russia, South Africa, and Turkey, during the periods before and after the Covid-19 pandemic, employing the (Quintos, Journal of Business & Economic Statistics 13:409–417, 1995) methodology. In the study, where the Fourier KPSS unit root and Fourier ADL cointegration tests, which take into account both smooth and sharp structural breaks, are performed, the existence of a cointegrated relationship is examined in all countries included in the analysis, and the long-term coefficients are determined by employing the FMOLS and DOLS estimation methods. The estimation results indicate that budget deficits sustainability is in strong form merely in Germany, Japan, Russia, and Turkey throughout both periods. It is determined that the budget deficits, which were in a strong sustainable form for Italy during the pre-Covid-19 period, have transformed into a weak sustainable form throughout the pandemic period.

Keywords Budget deficit · Sustainability · Fourier · Covid-19

JEL Codes C22 · G18 · H61 · H62

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1 Introduction

The coronavirus (Covid-19) pandemic, which spread all over the world briefly after it occurred in Wuhan, China's Hubei province as of December 2019, left its mark on 2020 due to the economic, social, and even political problems it generated and these problems have continued until today along with the mutations of the coronavirus. Unemployment has risen in all countries in which the pandemic has reached, there have been interruptions in the supply chain and production has stagnated. Besides, the service sector has been greatly suffered due to social isolation, and the constriction in financial conditions has deeply affected the capital markets. Eventually, most of the enterprises have encountered major adversities and bankruptcies, income and job losses have been experienced in certain sectors (International Labor Organization, 2020). Due to the economic stagnation caused by such a hardship process, the budget revenues of the governments have decreased and their expenditures have increased along with the decline in the tax collection potential. This circumstance, which caused serious devastation in labor, wealth, capital, and goods markets, is thought to be one of the most severe crises ever been experienced by the world economy following the Great Depression (Gourinchas, 2020).

Beyond a shadow of a doubt, although human health is prioritized, governments take a series of measures in an effort to mitigate the impacts of the crisis and maintain public welfare. Fiscal incentive packages, which include the planned expenditures against the crisis out of the government budget through the public treasury, aimed at households, companies, health systems, and banks (Elgin et al., 2020), and their scopes differ by country depending on financial strength (di Mauro, 2020).

In the implemented fiscal incentives, for instance, the UK, the USA, Australia, Nigeria, Turkey have approved comprehensive federal incentive packages for the sectors and industries most affected by the Covid-19 pandemic, whereas Australia, in addition to the USA and Turkey, made social assistance payments to support households. Besides those incentives; Australia, the USA, the UK, India, and Turkey have also provided individuals with income support (Ozili & Arun, 2020).

Upon considering the year 2020, while the USA has spent 2 trillion USD for fiscal measures, whereas the UK has spent 350 Thousand GBP, Canada 107 Thousand CAD, and the Czech Republic 100 Thousand CZK. Again, while Germany has spent 756 billion EUR for protecting well-established institutions and social assistance, whereas Italy has spent 400 billion EUR for domestic market and export support, and Turkey 100 billion TRY for increased loans and lower taxes. Spain has spent 200 billion EUR and Japan 1 trillion USD to support the public and private sectors. Although Japan has allocated more than twice the figures it put into effect during the 2008 crisis for support, the USA has announced the highest support package in the fight against the pandemic (Duran & Acar, 2020).

As can be seen, measures that include heavy public expenditures, transfer supports, and tax relief involve a quite high level of costs. Although emerging economies have had to utilize smaller fiscal incentive packages due to limited policy domains and concerns regarding high debts (Baldwin and di Mauro, 2020), the pandemic has deteriorated the balance of public revenues/public expenditures in various countries. In order to help the situation be seen more clearly in the G-7 countries and selected developing countries consisting of Brazil, Russia, South Africa, and Turkey within the scope of this study, public revenues/public expenditures plots are illustrated in Figs. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11.

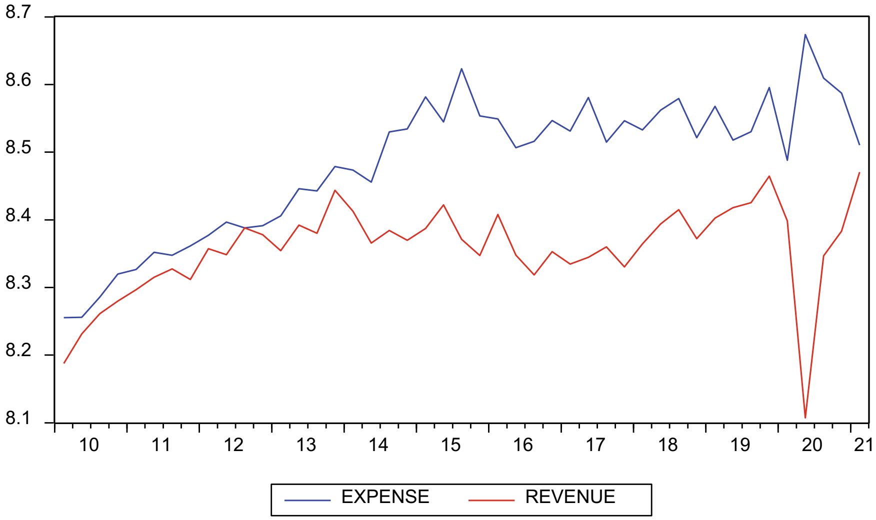

Fig. 1 Brazil

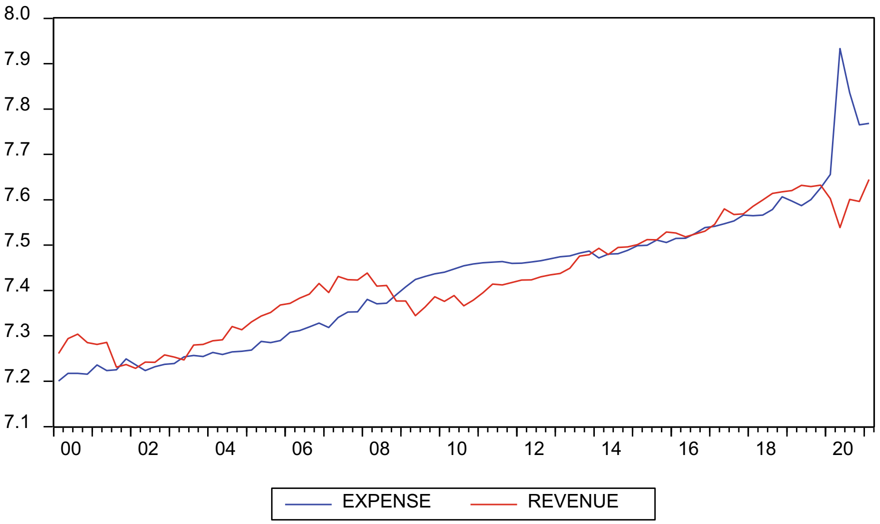

Fig. 2 Canada

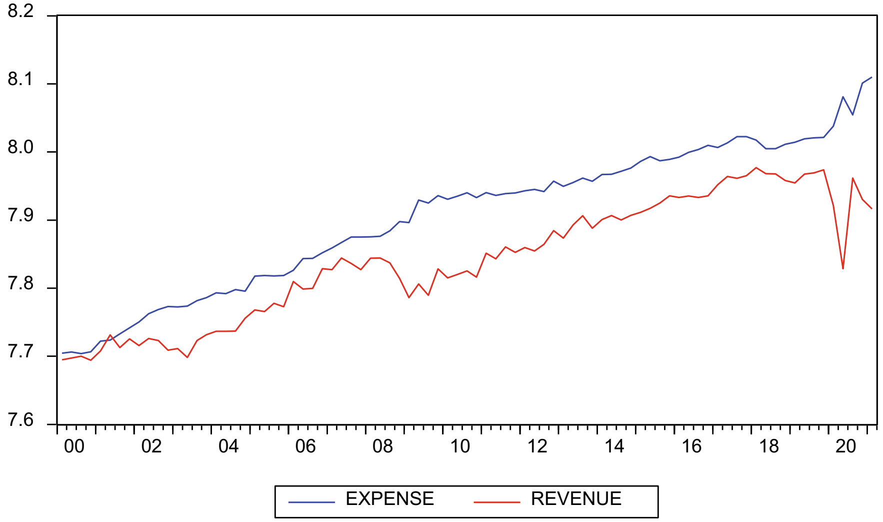

Fig. 3 France

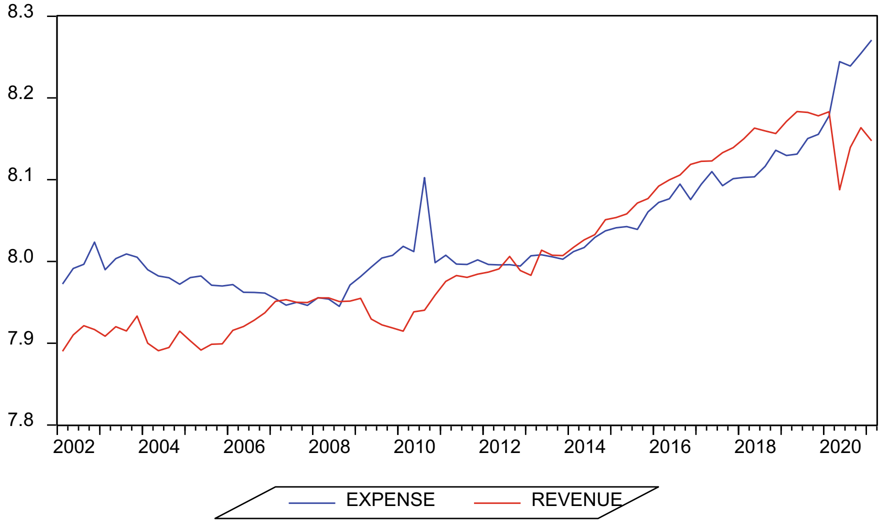

Fig. 4 Germany

These plots indicate that the gap between public revenues and public expenditures has widened in all countries except for Japan following the Covid-19 pandemic. Global public debt is expected to reach all-time high levels because of budget deficits, especially with the sharp decline in tax revenues and the sudden increase in government expenditures due to measures. The International Monetary Fund (IMF)

Fig. 5 Italy

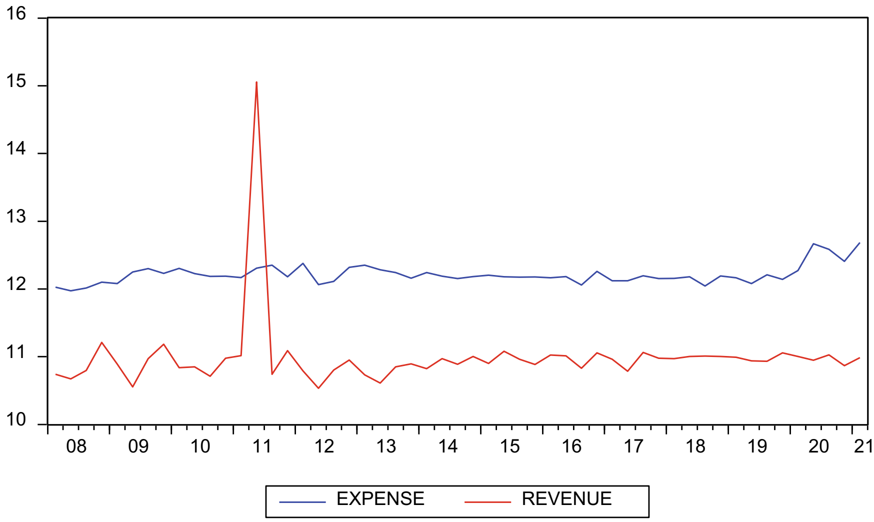

Fig. 6 Japan

predicted that the global public debt would have increased unprecedentedly by 16 points as of 2020 (Tevdovski et al., 2021).

Expansionary fiscal policy measures implemented by many countries through fiscal support packages to protect and recover their economies, the decrease in revenues caused by the pandemic, and the uncertainty regarding the aftermath of

Fig. 7 Russia

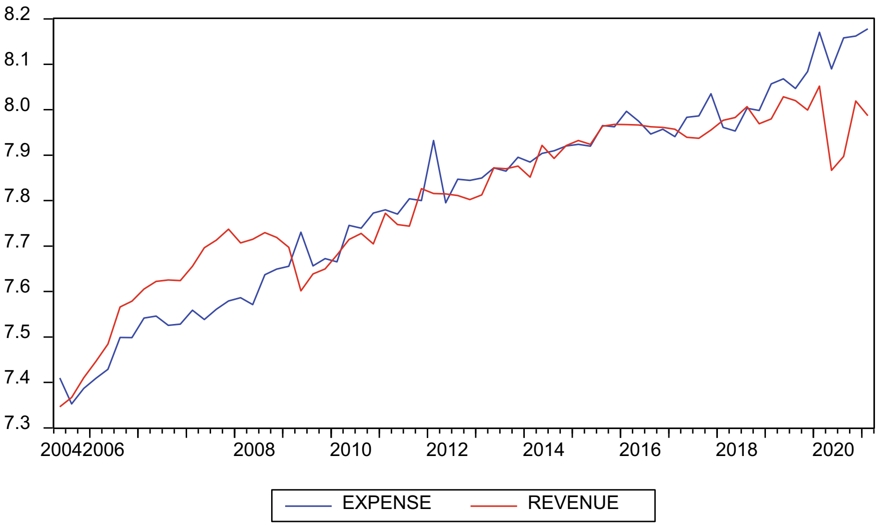

Fig. 8 South Africa

the pandemic have brought the budget deficits (International Monetary Fund, 2020) as well as the sustainability of those deficits to the agenda again. Although the uncertainties about the process have prevented any definite judgment regarding the extent to which the economic impacts of the pandemic are, budget deficits have certainly

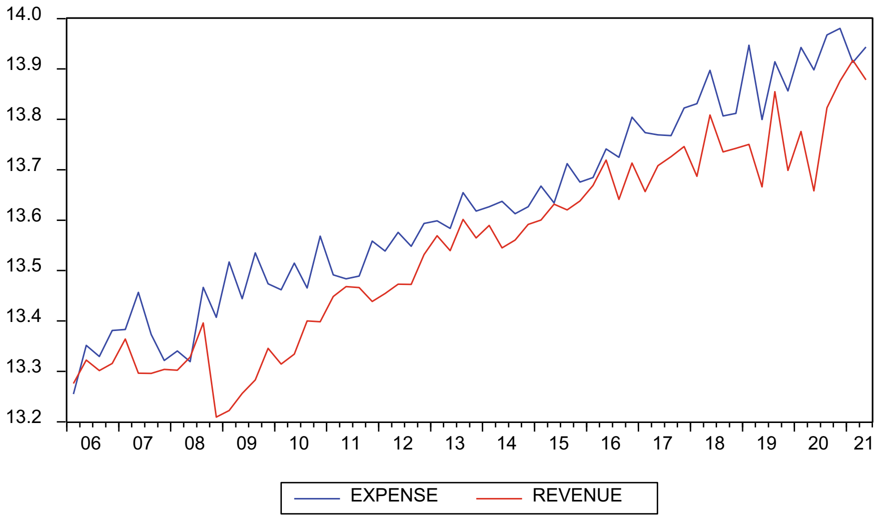

Fig. 9 Turkey

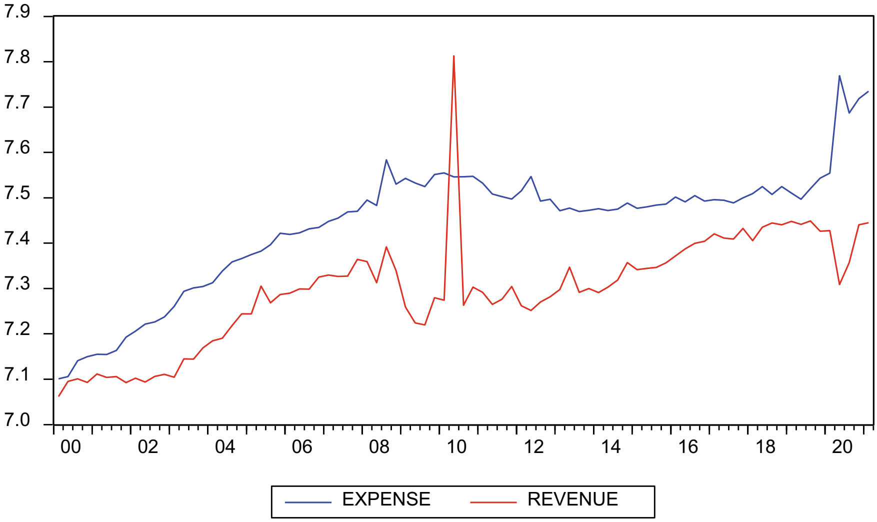

Fig. 10 United Kingdom

become a part of the new normality (Sabitova et al., 2020). Therefore, the determination of the sustainability of the budget deficit of the countries is gaining importance day by day.

Sustainability of budget deficits is defined as governments' management of financial resources in a way that can fulfill their current and future spending obligations (Harris, 2000). It is possible to categorize the approaches used to measure the

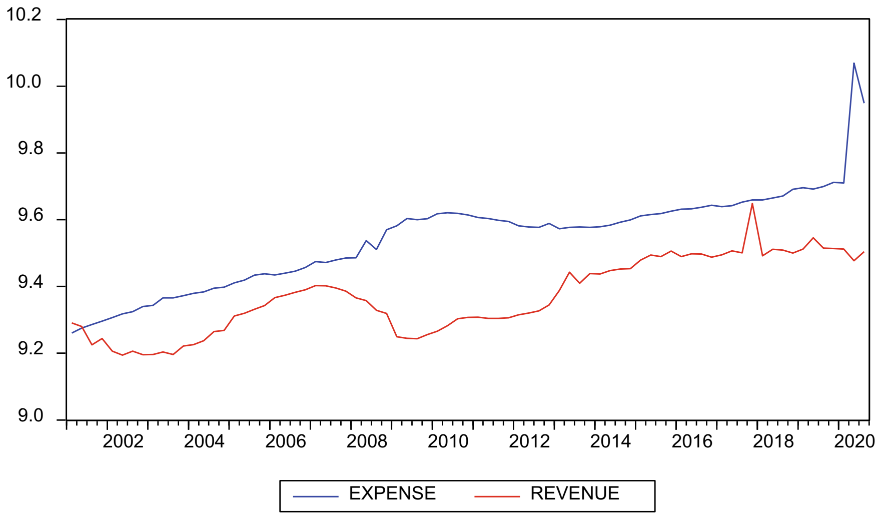

Fig. 11 USA

sustainability of budget policies under three headings. These include the accounting approach, sustainability indicators approach, and intertemporal borrowing constraint approach (Siriwardana, 1998). In recent studies conducted on sustainability, it is seen that the intertemporal approach has become more crucial than other approaches (Hakkio & Rush, 1991; Haug, 1991; Makrydakis et al., 1999; Quintos, 1995). Ensuring such constraint indicates that the budget deficit may be paid out in the long-run and, at the same time, clearly reveals the possibility that the implemented policies would cause debt accumulation. According to the intertemporal borrowing constraint approach, the governments, like individuals, tend to encounter certain constraints upon borrowing. Accordingly, the sustainability of the budget deficit occurs when the discounted value of the future primary surplus is equal to, or greater than the current public debt stock (Quintos, 1995).

A sustainable budget system ensures that the allocation of public resources is equitable between generations, that interest rates are kept at a level to encourage investments, that uncertainty is eliminated, and that the country's economy is more resistant toward shocks. Regarding the significance of the subject, Romer (2012) emphasized two essential inferences concerning the fiscal policies implemented following the crises. These include the facts that fiscal changes have major impacts on output as well as employment in the short-run, and that unsustainable budget deficit may eventually lead to destruction in the long-run. The motivation of this study is to examine the budget deficit sustainability of countries according to the intertemporal budget constraint approach, under the economic conditions, which are called the new normality, that changed along with the Covid-19 pandemic that affected the entire world as of 2020. In the first part of the study, a detailed literature review on the subject is presented. In the second part, involving the econometric methodology, information regarding the model, dataset, and employed econometric methods is provided. In the third part, the obtained findings of the econometric analysis are included, and the study is finalized with the conclusions and policy recommendations obtained from these findings.

2 Literature Review

Studies conducted on the sustainability of the budget deficit in the literature are mostly considered within the framework of the accounting approach, which analyzes sustainability with economic indicators, pioneered by Buiter (1985), and the intertemporal budget constraint approach, which analyzes sustainability with econometric methods, pioneered by Hamilton and Flavin (1986) (Siriwardana, 1998).

Since the sustainability of the budget deficits is crucial both in terms of fiscal policy practices and the impacts of these policies, as well as macroeconomic balances, various studies on sustainability have been conducted in the literature, especially under the intertemporal budget constraint approach. In this part, studies analyzing the sustainability of the budget deficit under the intertemporal budget constraint approach are reviewed in detail.

Studies examining the sustainability of the budget deficit are seen to be divided into two different groups such as studies based on the analysis of whether or not budget deficits be stationary through unit root tests, and studies based on the analysis of whether or not any long-term relationship exists between government revenues and expenditures through cointegration method (Holmes et al., 2010). Upon examining the literature on the subject, it is seen that the studies have drawn different conclusions. The differences in the employed methods, the selected country groups, and the time intervals under examination may prevent the studies conducted on the subject from drawing common conclusions.

Hamilton and Flavin (1986), utilizing the annual data obtained over the period 1960–1984, performed the Dickey–Fuller (DF) unit root test to determine the stationarities of the public debt stock and primary budget balance variables in order to analyze whether or not the budget deficits were sustainable in the USA, and asserted that stagnation was sufficient for the sustainability of budget deficits. The authors found both series as stationary and concluded that budget deficits in the USA were sustainable throughout the period under examination. Wilcox (1989) analyzed the sustainability of budget deficits in the USA utilizing the same dataset and method used by Hamilton and Flavin (1986) and indicated that the budget deficit of the USA was unsustainable, as opposed to Hamilton and Flavin (1986). Kremers (1989) investigated the sustainability of the US budget deficit performing the Augmented Dickey–Fuller (ADF) unit root test and concluded that the budget deficit was unsustainable over the period 1920–1981. Trehan and Walsh (1991), under the assumption that the expected real interest rate being constant, utilizing the annual data obtained over the period 1960–1984, investigated whether or not the US budget deficit was sustainable. The authors, who argued that the stationary at the first difference of the public debt stock was a sufficient condition for sustainability, concluded that the first difference of the public debt stock was stationary according to the DF unit root test. This indicated that the US budget deficit was sustainable. Baglioni and Cherubini (1993) examined whether or not the budget policies in Italy over the period 1979:01–1991:05 were sustainable. The result of the study, in which a unit root test was performed, asserted that Italy's budget policy was unsustainable during the period under examination. Uctum and Wickens (2000) examined whether or not the budget policies of the USA and European Union (EU) member countries were sustainable, utilizing the data obtained over the period 1965–1994. Performing the ADF and Phillips Perron (PP) tests; the authors, who attributed the necessary and sufficient conditions for sustainability to the stagnation of the discounted debt/GDP ratio, detected that the budget policies of Denmark, the Netherlands, and Ireland were sustainable; whereas the budget policies of the USA, Spain, Italy, Belgium, and Portugal were unsustainable. Koo (2002) examined the sustainability of Korea's budget deficit utilizing the annual data over the period 1970–1999. The study, in which the ADF and PP unit root tests were performed, found that the budget deficit and debt stock series were stationary, and concluded that Korea's budget deficit was sustainable. Arestis et al. (2004), using the threshold unit root test and the data obtained over the period 1947:02–2002:01, examined the sustainability of the US budget deficit and detected that the US budget deficit was sustainable, however, subject to structural breaks. Holmes et al. (2010) analyzed the stationarity of the EU budget deficits performing the panel stationarity tests utilizing the data of the 13 EU member countries over the period 1971–2006 and concluded that the budget deficit was sustainable in the long-run.

Hakkio and Rush (1991), one of the studies employing the cointegration method, analyzed the sustainability of the US budget deficits by performing the Engle–Granger cointegration test. In the study utilizing the quarterly data obtained over the period 1950–1988, the authors concluded that the budget deficits were unsustainable during the examined period. Haug (1991) examined whether or not the US budget deficit was sustainable by utilizing the quarterly data obtained over the period 1960–1987. The findings of the study employing the Engle–Granger cointegration method indicated that the budget deficit in the USA was sustainable. Quintos (1995), utilizing the quarterly data obtained over the period 1947–1992 and employing the cointegration method, examined whether or not the US budget deficits were sustainable, taking into account the structural changes, within the framework of the model with and without structural breaks. Quintos (1995), separating sustainability as weak and strong, concluded as a result of his analysis in two periods that there was sustainability in the period prior to the policy change and that the sustainability was weak following the policy change. Ahmed and Rogers (1995), utilizing the annual data obtained over the period 1792–1992 for the USA and 1692–1992 for the UK, examined whether or not the budget deficits of these countries were sustainable and indicated that sustainability existed in both countries. Fountas and Wu (1996) examined the sustainability of the budget deficit utilizing the annual data for Greece obtained over the period 1958–1992. In the study performing the Gregory–Hansen cointegration test, it was concluded that the Greek budget deficit over the period 1958–1992 was unsustainable.

Payne (1997) tested whether or not the budget deficit was sustainable in G-7 countries employing the method developed by Hakkio and Rush (1991). Performing both the unit root test and the cointegration test, Payne found that only Germany among the G-7 countries had a sustainable budget deficit. Green et al. (2001) examined whether or not Poland's budget deficit was sustainable using the monthly data obtained over the period 1991–1998, and they concluded that the budget deficit was sustainable during the examined period. Narayan and Narayan (2003) analyzed the sustainability of Fiji's budget deficit under the intertemporal budget constraint employing the cointegration method. In the study, utilizing the data obtained over the period 1970–2001, it was concluded that the budget deficit was sustainable in the long-run. Bajo-Rubio et al. (2008) examined the sustainability of the US budget deficits over the period 1947:01–2005:03. In their study, in which they identified structural breaks in the periods 1955:03, 1982:01, and 1996:03, and considered the multiple structural change approach, the authors concluded that strong sustainability existed over the period 1982:01–1996:02 and weak sustainability existed over the period 1947:01–2005:03. Panagiotis et al. (2009), considering the cointegration approach, examined whether or not the twin deficit, which is comprised of Greece's budget deficit and current account deficit, was sustainable. The study, utilizing the annual data obtained over the period 1960–2007, asserted that both the budget deficit and the current account deficit were sustainable in a weak form. Legrenzi and Milas (2012), utilizing the annual data obtained over the period 1960–2009, investigated whether or not the budget deficit in Italy was sustainable. In their study employing the cointegration method, the authors concluded that the budget deficit was sustainable throughout the examined period. Mercan (2014) examined whether or not the budget deficit was sustainable for 18 Organization for Economic Co-operation and Development (OECD) countries with budget deficit/GDP ratios higher than 3% as of 2012. Upon utilizing the quarterly data obtained over the period 1980–2012 and performing the panel cointegration test developed by Basher and Westerlund (2009), which allows multiple structural breaks, Mercan concluded that the budget deficit in OECD countries was sustainable in a weak form in the long-run. Trachanas and Katrakilidis (2014) analyzed the sustainability of Greece's budget deficit over the period 1960–2011, taking into account the structural breaks. In the study employing different cointegration methods, the authors concluded that the budget deficit was unsustainable. Neaime (2015) examined whether or not the budget deficits and public loans were sustainable in selected European Union countries by performing both unit root tests and the cointegration test. Although the unit root test results indicated that budget deficits were unsustainable in the countries included in the analysis, except for Germany, over the period 1977–2013; the cointegration test results revealed that the budget deficits of Germany and France were sustainable in a strong form. Shastri et al. (2017) investigated the sustainability of budget deficits as well as the dynamic links between government revenues and expenditures for India, Pakistan, Bangladesh, Srilanka, and Nepal through time-series analysis, panel unit root and cointegration tests by taking into account the structural breaks. In the study, utilizing the data obtained over the period 1985–2014, the authors concluded that budget deficits in 4 countries, except for Bangladesh, were sustainable in a weak form, according to both methods. Redda (2020) examined the sustainability of public debt and budget deficit in South Africa utilizing the data obtained over the period 2000–2018. The study, in which the cointegration method was employed, revealed that both the public debt and the budget deficit were unsustainable in South Africa during the examined period.

3 Econometric Methodology

3.1 Model and Dataset

In the study, the intertemporal budget constraint (IBC) approach is introduced to test the sustainability of the budget deficit. In this regard, the studies of Hakkio and Rush (1991) and Quintos (1995) are followed. Hakkio and Rush (1991) analyzed the budget revenues and expenditures of the US economy utilizing the quarterly data over the period 1950–1988. Provided that a cointegration relationship exists between the series, it is tested whether the coefficient of the budget expenditure variable (β) equals 1. If the parameter equals 1, it is claimed that the budget deficits are sustainable; if the parameter is lower than 1, it is claimed that the budget deficits are unsustainable in the long-run.

According to Hakkio and Rush (1991), the government's budget constraint is indicated in Eq. (1).

$$EXP_t + (1 + i_t)B_{t-1} = REV_t + B_t \tag{1}$$

In Eq. (1), EXP_t denotes public expenditures at time t; B_t represents the public debt at time t; i_t stands for the interest rate at time t; and REV_t represents public revenues at time t. This budget constraint must be fulfilled both for the period t and for the periods $t+1, t+2\ldots$. In this case, the IBC can be written as shown in Eq. (2);

$$B_0 = \sum_{t=1}^{\infty} i_t(REV_t - EXP_t) + \lim_{n\to\infty} i_n B_n \tag{2}$$

For the IBC to be maintained, the limit term in Eq. (2) must be equal to zero. This constraint provides the requirement for the government to borrow new loans to fund its deficits. Hakkio and Rush (1991) transformed Eq. (1) into (3), assuming the interest rate constant.

$$REV_t = \alpha_0 + \beta_1 EXP_t + \varepsilon_t \tag{3}$$

In Eq. (3), REV_t denotes public revenues at time t; and EXP_t represents public expenditures at time t, including loan interest payments.

In Quintos (1995), the weak and strong forms of sustainability were defined by improving Hakkio and Rush (1991);

- If the REV_t and EXP_t series are cointegrated and $\beta = 1$, the budget deficit would be strongly sustainable,
- If the REV_t and EXP_t series are cointegrated and $0 < \beta < 1$, the budget deficit would be weakly sustainable,
- If $\beta \leq 0$, the budget deficit would be unsustainable.

In this study, it is tried to investigate whether or not the budget deficits in 7 developed countries (G-7) consisting of the USA, Canada, the UK, Germany, France, Italy, and Japan as well as 4 selected developing economies consisting of Brazil, Russia, Turkey, and South Africa are sustainable with the help of the model shown in Eq. (3). The data of the countries included in the analysis are obtained from the International Financial Statistics (IFS) database and converted into real terms by consumer price indices (CPI), and they are included in the analysis once their natural logarithms are taken and they are seasonally adjusted employing the Census X12 method. Data intervals differ by country and are presented in Table 1.

The data utilized in the study are examined in two different periods in order to better detect the impact of the Covid-19 pandemic on budget deficits. The first of these periods is the one until the end of 2019, the period before the outbreak of the Covid-19 pandemic and it was referred to as a pandemic by spreading all over the world. The second one is the entire sample period, including the pandemic period. In this regard, it is tried to determine whether the budget deficits of the countries may become sustainable or a change would exist between the pre-pandemic period and the post-pandemic period in terms of weak or strong sustainability.

Table 1 Dataset

Country	Data interval	Source
USA	2001q1–2020q3	IFS
UK	2000q1–2021q1	IFS
Germany	2002q1–2021q1	IFS
France	2000q1–2021q1	IFS
Italy	2000q1–2021q1	IFS
Japan	2008q1–2021q1	IFS
Canada	2000q1–2021q1	IFS
Brazil	2010q1–2021q1	IFS
Russia	2000q1–2021q2	IFS
S. Africa	2004q2–2021q1	IFS
Turkey	2006q1–2021q2	IFS

3.2 The Fourier ADL Cointegration Test

Banerjee et al. (2017) developed a new cointegration test, which included the unknown forms of nonlinear breaks in the equation by adding the Fourier functions that he specified in Gallant (1981) into the deterministic term for the autoregressive distributed lag (ADL) model. Following Enders and Lee (2012), they specified the deterministic term $d(t)$ using the Fourier approach as shown in Eq. (4).

$$d(t) = \gamma_0 + \sum_{k=1}^{q} \gamma_{1,k} \sin\left(\frac{2\pi kt}{T}\right) + \sum_{k=1}^{q} \gamma_{2,k} \cos\left(\frac{2\pi kt}{T}\right), \quad q \leq T/2 \tag{4}$$

In Eq. (4), γ_0 denotes the deterministic term including constant and linear trends; k represents the optimal frequency number; π is the constant pi (3.1416); q denotes the maximum frequency number and; T stands for the number of observations. In the absence of a nonlinear trend, that is, if $\gamma_{1,k} = \gamma_{2,k} = 0$; Eq. (4) would be equal to the deterministic term (γ_0), in which case the conventional ADL test should be performed. As stated in Enders and Lee (2012), by adding the Fourier equations into the model, a reliable test is obtained in the presence of the impacts of breaks in the global time-series. Moreover, the possible over-fitting problem that may occur as a result of including a large number of dummy variables is prevented.

Upon adding the standard ADL approach from Eq. (4), the Fourier ADL test procedure, which is specified in Eq. (5), would be obtained.

$$\Delta y_{1t} = d(t) + \delta_1 y_{1,t-1} + \gamma' y_{2,t-1} + \varphi' \Delta y_{2t} + \varepsilon_t \tag{5}$$

In Eq. (5); γ, φ and y_{2t} are $n \times 1$ parameter vectors and explanatory variables. The equation is tested for the null hypothesis (H_0:$\delta_1 = 0$), which implies that no cointegration exists, as opposed to the alternative hypothesis (H_1:$\delta_1 < 0$), which implies the existence of cointegration. The Fourier ADL test statistic is calculated as shown in Eq. (6).

$$t_{ADL}^{F} = \frac{\widehat{\delta_1}}{se\left(\widehat{\delta_1}\right)} \tag{6}$$

$\widehat{\delta_1}$ in Eq. (6) denotes the OLS estimator in Eq. (5), and $se\left(\widehat{\delta_1}\right)$ represents the standard error of the OLS estimator. If the calculated t_{ADL}^{F} test statistical value is higher than the critical values, the null hypothesis would be rejected, and it would be concluded that a long-term relationship exists between the variables.

4 Econometric Findings

A four-stage econometric methodology, which aims to investigate the sustainability of budget deficits in developed as well as the selected developing countries, is employed in this study. In the first stage, the Fourier KPSS unit root test is performed to determine the stationarity properties of the series. In the second stage, if all the series are first-order integrated [I(1)], the Fourier ADL cointegration test would be performed; in the third stage, long-term coefficients would be determined by employing the Fully Modified OLS (FMOLS) and Dynamic OLS (DOLS) estimation methods in countries where the cointegration is detected. In the fourth stage, it would be determined whether or not the coefficient of the public expenditures variable equals 1 by performing the Wald test.

The Fourier KPSS unit root test results, which constitute the first stage of the econometric methodology, for real public expenditures and real public revenues, at the level and the first difference, are presented in Tables 2 and 3, respectively.

The Fourier KPSS test results indicate that the variables of real public revenues and real public expenditures included in the analysis are stationary at the first difference for all countries. After determining that all variables are integrated of the first order, the Fourier ADL cointegration test results for the entire sample period, including the pre-Covid-19 period and the pandemic period, obtained until the end of the fourth quarter of 2019, are presented in Tables 4 and 5, respectively.

Table 2 FKPSS unit root test results for expenditures

	At level				1st Diff.			
Country	Frequency	Min. SSR	FKPSS	F test	Frequency	Min. SSR	FKPSS	F test
USA	1	1.025	0.521	22.060	1	0.147	0.182	0.738
UK	1	1.091	0.547	20.358	1	0.076	0.137	2.542
Germany	1	0.206	0.435	43.321	3	0.030	0.308	1.451
France	1	0.403	0.556	54.163	3	0.007	0.120	1.189
Italy	2	0.115	0.846	15.418	1	0.022	0.129	1.223
Japan	1	0.902	0.218	3.799	1	0.739	0.049	0.757
Canada	1	1.035	0.515	37.146	2	0.096	0.159	0.641
Brazil	1	0.213	0.398	24.927	5	0.104	0.384	0.507
Russia	1	4.689	0.543	48.448	1	0.876	0.168	0.588
S. Africa	1	1.421	0.470	40.809	5	0.112	0.105	0.197
Turkey	1	0.996	0.480	38.769	5	0.226	0.489	0.200

Note Critical values for frequency values 1, 2, 3, 4, and 5 at 5% significance level are 0.1720, 0.4152, 0.4480, 0.4592 and 0.4626, respectively. F-test statistic is 4.929 at 5% significance level

Table 3 FKPSS unit root test results for revenues

	At Level				1st Diff.			
Country	Frequency	Min. SSR	FKPSS	F test	Frequency	Min. SSR	FKPSS	F test
USA	1	0.512	0.321	33.384	2	0.073	0.188	2.050
UK	2	0.812	1.076	22.340	2	0.666	0.186	0.101
Germany	1	0.216	0.460	80.247	5	0.020	0.172	1.542
France	1	0.242	0.462	69.256	4	0.043	0.166	0.727
Italy	2	0.068	0.554	26.844	2	0.046	0.059	0.670
Japan	1	16.910	0.239	1.494	5	36.436	0.500	0.183
Canada	1	0.551	0.470	45.997	3	0.029	0.045	1.252
Brazil	2	0.156	0.323	5.629	4	0.188	0.192	0.574
Russia	1	6.047	0.464	26.673	4	0.912	0.183	1.746
S. Africa	1	0.877	0.417	42.557	2	0.106	0.112	1.192
Turkey	1	0.754	0.473	58.399	3	0.238	0.198	0.413

Table 4 Fractional Fourier ADL cointegration results (before Covid-19)

Model: $Rev = f(Exp)$			Critical values			
Country	Frequency	Test statistic	1%	5%	10%	Result
USA	1.8	−3.461	−4.467	−3.790	−3.435	Cointegration
UK	1.1	−5.224	−4.682	−4.050	−3.706	Cointegration
Germany	2.4	−3.971	−4.903	−4.249	−3.905	Cointegration
France	2.4	−3.957	−4.903	−4.249	−3.905	Cointegration
Italy	2	−4.962	−4.407	−3.722	−3.361	Cointegration
Japan	2.6	−4.451	−4.264	−3.576	−3.208	Cointegration
Canada	1.7	−3.765	−4.507	−3.837	−3.469	Cointegration
Brazil	1.4	−5.389	−4.601	−3.944	−3.601	Cointegration
Russia	3.1	−3.967	−4.748	−4.084	−3.724	Cointegration
S. Africa	2	−4.211	−4.407	−3.722	−3.361	Cointegration
Turkey	0.1	−4.623	−5.084	−4.47	−4.157	Cointegration

The Fourier ADL cointegration test results indicate that a long-run relationship exists between real public revenues and real public expenditure variables in all countries that are included in the analysis, for both the pre-pandemic period and the entire sample group.

Following the determination of the cointegrated relationship, the long-term coefficients would be determined by employing the FMOLS and DOLS estimation methods. Besides, the Wald test (W_{DOLS}) would be performed to determine whether sustainability is in strong form or weak form and whether the real public expenditure coefficient equals 1. Long-term coefficient estimates and the Wald test statistics are

Table 5 Fractional Fourier ADL cointegration test results (full sample)

Model: $Rev = f(Exp)$			Critical values			
Country	Frequency	Test statistic	1%	5%	10%	Result
USA	1.8	−3.792	−4.467	−3.790	−3.435	Cointegration
UK	2	−5.340	−4.407	−3.722	−3.361	Cointegration
Germany	1.3	−4.497	−5.162	−4.547	−4.231	Cointegration
France	2.3	−4.079	−4.932	−4.254	−3.907	Cointegration
Italy	2.3	−6.300	−4.932	−4.254	−3.907	Cointegration
Japan	2.8	−4.946	−4.239	−3.537	−3.166	Cointegration
Canada	2	−5.091	−4.407	−3.722	−3.361	Cointegration
Brazil	2.1	−4.566	−4.394	−3.711	−3.336	Cointegration
Russia	3.3	−3.554	−4.175	−3.461	−3.101	Cointegration
S. Africa	0.6	−4.064	−4.805	−4.182	−3.863	Cointegration
Turkey	3.1	−3.960	−4.748	−4.084	−3.724	Cointegration

presented in Tables 6 and 7 for the entire sample period, including the pre-pandemic period and the pandemic period, respectively.

The positive long-term coefficients for all countries indicate that the budget deficits are sustainable. Nevertheless, as a result of the Wald test, it is determined that the budget deficits of only Germany, Japan, Russia, and Turkey are strongly sustainable both in the pre-pandemic period and in the entire sample period, including the pandemic period. Italy, on the other hand, has a strong sustainable form of budget deficits during the pre-pandemic period, whereas a weak form of sustainability throughout the post-pandemic period.

5 Conclusion and Political Recommendations

In order to ensure economic sustainability, basic macroeconomic balances should be maintained concurrently, and domestic and foreign debts within the economy should be kept at manageable levels (Harris, 2000). The concept of sustainability of debt, on the other hand, can be defined as the provision of the current budget constraint without making major adjustments in the revenue-expenditure equilibria under the funding cost encountered in the market (Geithner, 2002). However, the acceptance of Keynesian policies as the dominant economic view, especially following the Great Depression of 1929, caused countries to ignore the fiscal equilibria in their policies towards economic growth.

Similar to the period following the Great Depression of 1929, the Covid-19 pandemic, which has affected the world since the dawn of 2020, has also caused countries to boost their public expenditures, especially health expenditures. On the other hand, various isolation methods employed to prevent the spread of the pandemic

Table 6 Long-term coefficients and Wald test statistics (before Covid-19)

Country	FMOLS	W_{DOLS}	DOLS	W_{DOLS}	Result
USA	0.652 [6.196]	10.929 [0.000]	0.710 [4.542]	3.441 [0.063]	Weak sustainability
UK	0.780 [8.045]	5.147 [0.023]	0.786 [6.624]	3.238 [0.071]	Weak sustainability
Germany	1.050 [9.313]	0.256 [0.127]	1.048 [8.209]	0.327 [0.185]	Strong sustainability
France	0.855 [15.771]	7.070 [0.007]	0.846 [13.845]	6.316 [0.012]	Weak sustainability
Italy	0.955 [0.000]	0.198 [0.655]	0.995 [9.209]	0.001 [0.964]	Strong sustainability
Japan	1.462 [1.526]	0.232 [0.629]	1.892 [1.164]	0.301 [0.582]	Strong sustainability
Canada	0.855 [12.039]	4.157 [0.041]	0.848 [11.608]	4.322 [0.037]	Weak sustainability
Brazil	0.372 [0.000]	40.488 [0.000]	0.270 [0.023]	41.433 [0.000]	Weak sustainability
Russia	0.925 [0.000]	0.606 [0.436]	0.923 [0.000]	0.482 [0.487]	Strong sustainability
S. Africa	0.804 [0.000]	14.675 [0.000]	0.783 [0.000]	15.670 [0.000]	Weak sustainability
Turkey	0.994 [0.000]	0.005 [0.942]	1.006 [0.000]	0.006 [0.937]	Strong sustainability

have caused the incomes of individuals and revenues of institutions to decline, have led to economic stagnation, and have resulted in a decrease in public revenues. The increase in public expenditures and the decrease in public revenues rendered it difficult to fund and maintain budget deficits, hence, countries plunged into the vicious cycle of borrowing which, in turn, increased the potential for an economic crisis.

In this study, by employing the intertemporal budget constraint approach method, which states that the budget deficit should be funded with public revenue surplus in the long-term and that the public sector cannot pay out its debts continuously by borrowing, it is aimed to investigate the sustainability of the budget deficits in both periods, including the pre-pandemic period and the period including the pandemic period, for G-7 countries and the selected developing countries consisting of Brazil, Russia, South Africa, and Turkey.

In this respect, firstly, the stationarity properties of real public revenues and real public expenditures variables are examined performing the Fourier KPSS unit root test and it is determined that both variables are stationary at the first differences in all countries included in the analysis.

After determining that the series are integrated of the first order, the existence of a long-term relationship between them is investigated by performing the Fourier ADL cointegration test, and as a result, the existence of a long-term relationship between

Table 7 Long-term coefficients and Wald test statistics (full sample)

Country	FMOLS	W_{DOLS}	DOLS	W_{DOLS}	Result
USA	0.672 [7.402]*	12.999 [0.000]**	0.664 [4.645]	5.485 [0.019]	Weak sustainability
UK	0.574 [7.472]	30.698 [0.000]	0.695 [7.312]	10.204 [0.001]	Weak sustainability
Germany	1.088 [7.698]	0.393 [0.530]	1.018 [6.821]	1.172 [0.278]	Strong sustainability
France	0.787 [14.378]	15.142 [0.000]	0.796 [15.025]	14.707 [0.000]	Weak sustainability
Italy	0.600 [5.153]	11.756 [0.000]	0.636 [5.445]	9.659 [0.001]	Weak sustainability
Japan	0.313 [0.547]	1.439 [0.230]	0.128 [0.136]	0.859 [0.353]	Strong sustainability
Canada	0.726 [10.939]	16.964 [0.000]	0.739 [10.424]	13.503 [0.000]	Weak sustainability
Brazil	0.170 [2.054]	99.684 [0.000]	0.110 [0.837]	45.660 [0.000]	Weak sustainability
Russia	0.883 [9.762]	1.647 [0.199]	0.868 [8.477]	1.637 [0.200]	Strong sustainability
S. Africa	0.732 [13.675]	24.992 [0.000]	0.721 [13.396]	26.693 [0.000]	Weak sustainability
Turkey	0.966 [14.733]	0.254 [0.613]	0.966 [14.069]	0.232 [0.629]	Strong sustainability

Note *The values in parenthesis indicate t statistic values. ** indicate the probability values of χ^2 test statistic with the degree of freedom 1 at 5% significance level of W_{DOLS} statistic

the variables is detected during both periods for all countries. After determining the long-term relationship, the coefficient of the real public expenditures variable is estimated by employing the FMOLS and DOLS estimation methods, and it is determined that the coefficients assume positive values in both methods. This result indicates that budget deficits are sustainable during both periods in all countries within the scope of the study.

Nonetheless, as Quintos (1995) stated in his study, in order to determine whether such sustainability is in strong or weak form, the Wald test, which tests the equality of β coefficient to 1 in the null hypothesis, is performed on the long-term coefficients. According to the Wald test, strong sustainability of budget deficits is detected for Germany, Italy, Japan, Russia, and Turkey during the pre-pandemic period; whereas weak sustainability is detected for the USA, the UK, France, Canada, Brazil, and South Africa. During the entire sample period, including the pandemic period, it is determined that budget deficits in Germany, Japan, Russia, and Turkey have strong sustainability; whereas budget deficits in the USA, the UK, France, Italy, Canada, Brazil, and South Africa have weak sustainability characteristics.

Between the pre-pandemic period and the period including the pandemic period, a transition from strong sustainability to weak sustainability was present merely in Italy. The main reason for this circumstance is that Italy is one of the European countries most affected by the Covid-19 pandemic.

Since the sustainability in the funding method does not require a funding method other than the current one in the countries that are determined as strongly sustainable, these countries are provided with a sound public finance discipline, and no policy changes are required. Nonetheless, countries in which governments spend higher than their revenues, thus increasing the risk of default and rendering it necessary to borrow with higher interest rates, incur weak sustainable budget deficits (Payne et al., 2008). Due to the constant need for new funding methods and resources, the ability of countries that are detected to incur weak-form budget deficits to repay their debts in the long-run also weakens. Especially along with the new normality process of governments, boosting public expenditures and major changes in budget structures under changing economic conditions require new management targets (Terziev, 2020).

Therefore, performance-based budgeting based on a strategic plan, which can lower borrowing interest rates and borrowing amount in countries with weak sustainability, should be implemented more effectively in compliance with its objectives. Thus, borrowing interest rates and the borrowed amounts would be reduced, and sustainability would be strengthened. For this purpose, it is crucial to follow revenue-boosting or expenditure-reducing policies in order to ensure fiscal discipline without experiencing debt crises or to take effective measures through which both policies can be utilized concurrently, and that policy-makers, as well as international organizations, assume a more active role in maintaining the required financial reforms.

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