

# Status of the Socio-Economic Dimensions of Lipa Upon Implementation of COVID-19 Response

Mr. Renato T. Asi Jr., MPA<sup>1</sup>, Dr. Razel I. Melendres-Ingco<sup>2</sup>

<sup>1,2</sup>Batangas State University Pablo Borbon Campus, Rizal Ave., Batangas City, Philippines 4200

Email address: renato.asijr@g.batstate-u.edu.ph; razel.ingco@g.batstate-u.edu.ph

**Abstract**— The emergence of the COVID-19 pandemic brought unprecedented disruptions in the lives of people all over the world. As policies of the national government continually develop, the local government units make and exert efforts to provide various plans of action to mitigate the effects of the COVID-19 virus. Thus, the study aimed to identify the status of the socio-economic dimensions of Lipa upon implementation of the COVID-19 response. The study utilized a descriptive convergent parallel method of research that concurrently conducts the quantitative and qualitative research procedures. A survey questionnaire using stratified multistage random sampling, and a focus group discussion was employed. The study's findings reveal that most of the respondents were female aged 39 and below, and categorized themselves as None on the occupation. Visible transformation in quality of life, wealth and economic growth to a great extent, while education and human capital development, job creation and employment, health, and wellness, and clean environment and green industry to a great extent. Furthermore, when grouped according to age, a significant difference in the quality of life, education and human capital development, and health and wellness; and a not significant difference in wealth and economic growth, job creation and employment, and clean environment and green industry was observed; both sex and occupation conclude that a significant difference exists in all socio-economic dimensions. The residents and LGU Officers/Employees of Lipa also encountered challenges during the implementation of the response. As such, a strategy was proposed to boost the delivery of socio-economic services.

**Keywords**— Socio-Economic Dimensions, COVID-19 Response, Lipa City, Philippines.

## I. INTRODUCTION

The emergence of the COVID-19 pandemic brought unprecedented disruptions in the lives of people all over the world. It came so unexpectedly that it caught everybody by surprise and that no one was ready to brace for its impact on society. The chaos that resulted from this pandemic has tested the government's competency, from top to bottom, with regard to both public administration and public policy. Moreover, the effects of this pandemic have resulted in both economic instability and the crucial re-evaluation of whether or not the officials and authorities of the government are competent enough in handling the urgency of the situation.

Since the emergence of COVID-19 in the Philippines in January 2020, various sectors of society had already suggested that the government should act both proactively and preventively in its containment measures. However, the delayed travel ban implementation in the country inflicted the first local transmission by February and cause a significant rise in numbers. Thus, then President Rodrigo Duterte signed

Proclamation No. 922, S. 2020 (Official Gazette, 2020) on March 9, suspended classes in the National Capital Region. Days later, partial community quarantine protocols were implemented to minimize the transmission of the COVID-19 virus in the country. Subsequently, on March 16, the entire island of Luzon was placed under enhanced community quarantine, and on the following day – a proclamation placing the country under a state of calamity was declared.

The lingering presence of COVID-19 in the country has truly highlighted and emphasized the country's frail system of politics and governance that hunger for a competent, resilient, and evaluative leader that can help in answering the needs of the country and can provide sustainable development and transformation in spite of trials and inconvenience. Likewise, the virus's adverse effects necessitate a quick, efficient, and effective long-term plan that will answer the needs of the people. Thus, to achieve a sustained and progressive community, each person who takes part in whatever community endeavor must be recognized. Each can have his/her own contribution. However, knowing what each person can contribute is not enough, but enhancing and utilizing people's contributions will truly help realize a sustainable and progressive public administration.

Moreover, actions taken to sustainably manage, monitor, and control the development of their government from top to bottom administration were introduced and implemented. They were designed to secure and ensure, enhance, and strengthen its economic stability, social amelioration, and environmental protection. The socio-economic transformation could be the primary driving force to attain this goal of providing sustained development and progress among generations as it deals with the increasing proportion of economic output to serve the needs of the society. Thus, countless opportunities for the local government units to strengthen and strategize their plans, projects, and activities to promote and encourage sustainable transformation in all sectors of society came in the form of varied COVID-19 responses.

With this, the researcher got interested to look for answer to the question regarding the extent of transformation that the COVID-19 response in Lipa City made on its socio-economic dimension and the extent of challenges that the residents and the LGU of Lipa encountered upon implementation of the said response in the midst and in the aftermath of the COVID-19 pandemic.

II. METHODS

The study utilized descriptive convergent parallel design. This is a research design in which a researcher collects and analyzes quantitative and qualitative data at the same time. After both analyses were completed, the researcher compare the results in order to draw an overall conclusion.

Moreover, the data gathering instrument used in this study was a survey questionnaire and a focus group discussion constructed and facilitated by the researcher, in which 400 residents of Lipa City were asked to participate in the researcher-made questionnaire, who were identified using stratified random sampling. Meanwhile, twelve individuals were asked to participate in the focus group discussion. The respondents were divided into two groups: (1) Lipa City residents and (2) LGU officials/employees to determine the challenges encountered by these groups upon the implementation of the COVID-19 response.

Furthermore, data collected in the survey were treated through frequency, mean, T-test, and analysis of variance; while the transcription of the focus group discussion was treated using themes and sub-themes.

III. RESULTS AND DISCUSSION

TABLE 1. Profile According to Age

Age bracket	Frequency	Percent
18 – 24	124	31
25 – 39	144	36
40 – 49	58	14.5
50 – 59	47	11.75
60 and above	27	6.75
Total	400	100

Table 1 illustrates the frequency distribution of the profile of the respondents according to their age. It shows that the majority of the respondents belong to the age bracket of 39 and below, or the age that focuses on the recognition of oneself and discovering one’s true identity. As such, the respondents could be understood to provide differentiating and individuating responses.

TABLE 2. Profile According to Sex

Sex	Frequency	Percent
Male	156	39
Female	244	61
Total	400	100

Table 2 exhibits the distribution of respondents on their profile based on their sex. As cited, the majority of the samples collected for the survey conducted came from female respondents with a total percentage of 61%, while the remaining came from male respondents.

Table 3 provides the distribution of respondents when grouped according to their profile – occupation. This suggests that the responses came from various sectors of occupations that are affected directly or indirectly by the pandemic. Also, most of the responses belong to the None category or those respondents that are either retired, unemployed, or still studying.

Table 4 depicts the extent of transformation in the Quality of Life in the City of Lipa upon implementation of the

COVID-19 Response. 2. The statements included on the quality of life dimension on socioeconomic transformation accumulated a composite mean of 5.56 with a verbal interpretation of to a great extent. Statement 6 “Through the improved government process, the application of services has been conducive and time-bound.” gained the highest mean of 5.75 with the verbal interpretation of to a very great extent, while the lowest was Statement 3 “Through the provision of the Social Amelioration Program (SAP), the needs of every family for sustenance have been achieved.” With an average of 5.29 and a to a great extent verbal interpretation.

TABLE 3. Profile According to Occupation

Occupation	Frequency	Percent
Managers	23	5.75
Professionals	92	23
Technical and Associate Professionals	25	6.25
Clerical Support Workers	22	5.5
Service and Sales Workers	23	5.75
Agricultural, Forestry, Fishery Workers	21	5.25
Craft and Related Trades Workers	16	4
Plant and Machine Operators and Assemblers	19	4.75
House Helpers	17	4.25
Armed Forces Occupations	25	6.25
None	117	29.25
Total	400	100

TABLE 4. Extent of Transformation in terms of Quality of Life

Quality of Life	Mean	Verbal Interpretation
Through the increased level of awareness of the effects of COVID-19, the development of people’s cautiousness towards their day-to-day transactions has been improved.	5.72	To a Very Great Extent
Through various programs and benefits for local senior citizens, solo parents, and PWDs, enhancement of their welfare has been visible	5.58	To a great Extent
Through the provision of the Social Amelioration Program (SAP), the needs of every family for sustenance have been achieved.	5.29	To a great Extent
Through interactive programs and activities, the participation of every individual in community development has been made evident.	5.49	To a great Extent
Through community-based programs, the lives of every individual have been made easier, safer, and more comfortable.	5.47	To a great Extent
Through the improved government process, the application of services has been conducive and time-bound.	5.75	To a Very Great Extent
Through volunteerism initiatives, empowerment and camaraderie among communities have been strengthened.	5.65	To a Very Great Extent
Through the tied-up projects, the provision of a feasible and efficient program toward common goals and expectations has been achieved	5.48	To a great Extent
<b>Composite Mean</b>	<b>5.56</b>	<b>To a great Extent</b>

Table 5 shows the extent of development that the COVID-19 Response made on the Wealth and Economic Growth in the City of Lipa. In general, the statements on Wealth and Economic Growth attained a mean score of 5.38 with a sustained verbal interpretation of to a great extent. Both Statement 3 “Through the Alternatibong Kabuhayan program, the various modes or sources of income and livelihood have been maintained and developed” and Statement 5 “Through Eco-Tourism programs, tourism sites have been revitalized.”

received the highest mean score of 5.47. Statement 2 “Through the Business One Stop Shop, the application and renewal of permits which will result in an increase in capital investment have been achieved”, on the other hand, got the lowest mean score of 5.38.

TABLE 5. Extent of Transformation in terms of Wealth and Economic Growth

Wealth and Economic Growth	Mean	Verbal Interpretation
Through the construction of the Negosyo Center in each barangay, livelihood opportunities that will impact their socio-economic growth have been extended to the grassroots level of the community.	5.39	To a great Extent
Through the Business One Stop Shop, the application and renewal of permits which will result in an increase in capital investment have been achieved	5.38	To a great Extent
Through the Alternatibong Kabuhasan program, the various modes or sources of income and livelihood have been maintained and developed	5.47	To a great Extent
Through the establishment of Outsource Centers, working conditions have been adaptive.	5.39	To a great Extent
Through Eco-Tourism programs, tourism sites have been revitalized.	5.47	To a great Extent
<b>Composite Mean</b>	<b>5.38</b>	<b>To a great Extent</b>

TABLE 6. Extent of Transformation in terms of Education and Human Capital Development

Education and Human Capital Development	Mean	Verbal Interpretation
Through various modes of scholarship programs, financial assistance, and grants for students, an increase in students’ access to quality education has been more evident.	5.99	To a Very Great Extent
Through the establishment of the Training Development Academe, members of the community have been acquainted with novel knowledge and skills	5.72	To a Very Great Extent
Through the development of a wide range of learning materials for students, the mantra of “No one should be left behind” has been observed.	5.78	To a Very Great Extent
Through the provision of school tools and equipment for public school teachers, the delivery of instructional materials has been inclusive and flexible.	5.81	To a Very Great Extent
Through the construction of TESDA Provincial Training Centers, employment proficiency has been achieved	5.81	To a Very Great Extent
<b>Composite Mean</b>	<b>5.82</b>	<b>To a Very Great Extent</b>

Table 6 demonstrates the level of transformation that the COVID-19 response made in Lipa City’s education and human capital development. The statements used in the education and human capital development dimension garnered a composite mean of 5.82 and a verbal interpretation of to a very great extent. Statement 1 “Through various modes of scholarship programs, financial assistance, and grants for students, an increase in students’ access to quality education has been more evident.” got the highest mean score of 5.99, while Statement 2 “Through the establishment of the Training Development Academe, members of the community have been acquainted with novel knowledge and skills” has a lowest mean score of 5.72.

TABLE 7. Extent of Transformation in terms of Job Creation and Employment

Job Creation and Employment	Mean	Verbal Interpretation
Through the Trash2Cash programs, alternative modes of income generation for those at the grassroots have been offered.	5.79	To a Very Great Extent
Through the establishment of business districts, a wide array of employment opportunities has been accessible.	5.62	To a Very Great Extent
Through the “Trabaho Para sa Kabataan” programs, youth productivity and development have improved.	5.82	To a Very Great Extent
Through the opening of BPO opportunities, the level of job proficiency has increased.	5.75	To a Very Great Extent
Through PEZA-coordinated programs, easier access to job opportunities have been provided.	5.59	To a great Extent
Through various virtual and onsite job fairs, the employment rate has increased.	5.79	To a Very Great Extent
<b>Composite Mean</b>	<b>5.73</b>	<b>To a Very Great Extent</b>

Table 7 supplies the data on the degree of improvement in Job Creation and Employment that the COVID-19 response has made to the City of Lipa upon implementation. The composite mean of the statements for Job Creation and Employment was 5.73 which led to an interpretation of to a very great extent. Statement 3 “Through the “Trabaho Para sa Kabataan” programs, youth productivity and development have improved.” has the highest mean score of 5.82 with a verbal interpretation of to a very great extent, while Statement 5 “Through PEZA-coordinated programs, easier access to job opportunities have been provided.”, however, only received a verbal interpretation of to a great extent due to its mean score of 5.59.

TABLE 8. Extent of Transformation in terms of Health and Wellness

Health and Wellness	Mean	Verbal Interpretation
Through the establishment of mini-playgrounds and the conduct of Zumba sessions, a healthy and balanced lifestyle has been achieved.	5.77	To a Very Great Extent
Through school-based immunization for children, the health and wellness of the vulnerable sector of the community have been protected.	6.01	To a Very Great Extent
Through the provision of free antigen and swab testing, the safety of the public against the virus has been secured.	5.92	To a Very Great Extent
Through online competitions like drawing, singing, and dance contest, camaraderie has been strengthened.	5.80	To a Very Great Extent
Through systematized vaccination programs, proper allocation of dosage has been ensured.	5.90	To a Very Great Extent
Through free medical healthcare programs, the mortality rate has been lessened.	5.69	To a Very Great Extent
<b>Composite Mean</b>	<b>5.85</b>	<b>To a Very Great Extent</b>

Table 8 reveals the information regarding the amount of transformation that the COVID-19 response in Lipa made on the Health and Wellness dimension. To synthesize, the health and wellness dimension earned a 5.85 composite score and a verbal interpretation of to a very great extent. Statement 2



“Through school-based immunization for children, the health and wellness of the vulnerable sector of the community have been protected.” earned the highest mean score of 6.01 with verbal interpretation to a very great extent, and Statement 6 “Through free medical healthcare programs, the mortality rate has been lessened.” received the lowest score of 5.69.

TABLE 9. Extent of Transformation in terms of Clean Environment and Green Industry

Clean Environment and Green Industry	Mean	Verbal Interpretation
Through Agri-Business Trading, a stable and efficient supply of food and other agricultural products has been ensured.	5.61	To a Very Great Extent
Through the installation of additional vertical gardens, the beautification of the community has been attained.	5.70	To a Very Great Extent
Through the establishment of bypass roads, the mode of transportation has been more convenient	5.79	To a Very Great Extent
Through proper waste management and waste disposal, a greener community has been achieved.	5.75	To a Very Great Extent
Through improved public market operations, the trading of goods has been more organized.	5.77	To a Very Great Extent
<b>Composite Mean</b>	<b>5.72</b>	<b>To a Very Great Extent</b>

TABLE 10. Significant Difference in the Responses of the Residents When Grouped According to Age

	Mean	F-values	p-values	Decision to Ho	Interpretation
Quality of Life	18-24	3.211	0.013	Reject	Significant
	25-39				
	40-49				
	50-59				
	60 and above				
Total	5.56				
Wealth and Economic Growth	18-24	1.472	0.21	Failed to Reject	Not Significant
	25-39				
	40-49				
	50-59				
	60 and above				
Total	5.38				
Education and Human Capital Development	18-24	3.898	0.004	Reject	Significant
	25-39				
	40-49				
	50-59				
	60 and above				
Total	5.82				
Job Creation and Employment	18-24	2.04	0.088	Failed to Reject	Not Significant
	25-39				
	40-49				
	50-59				
	60 and above				
Total	5.73				
Health and Wellness	18-24	2.544	0.039	Reject	Significant
	25-39				
	40-49				
	50-59				
	60 and above				
Total	5.85				
Clean Environment and Green Industry	18-24	2.121	0.078	Failed to Reject	Not Significant
	25-39				
	40-49				
	50-59				
	60 and above				
Total	5.72				

Table 9 entails the extent of transformation that the COVID-19 response has made in the City of Lipa in terms of the Clean Environment and Green Industry. After combining all the generated means, the clean environment and industry were able to provide a composite mean of 5.72 with a verbal interpretation of To a Very Great Extent. The highest mean score of 5.79 was obtained by Statement 3 “Through the establishment of bypass roads, the mode of transportation has been more convenient”, while the lowest mean score of 5.61 was attained by Statement 1 “Through Agri-Business Trading, a stable and efficient supply of food and other agricultural products has been ensured.”

Table 10 entails the divergence of data of the residents of Lipa City when grouped according to their age. For the quality of life, education and human capital development, and health and wellness, a p-value lower than the set p-value of 0.05 was generated when the responses of the residents were grouped according to their age; hence, this indicates a rejection of the hypothesis, and a significant difference in the responses of the respondents was identified. While, the wealth and economic growth, job creation and employment, and clean environment and green industry had a p-value higher than the set p-value of 0.05 which failed to reject the hypothesis and recognition of a significant difference established.

TABLE 11. Significant Difference in the Responses of the Residents When Grouped According to Sex

	sex	Mean	F-values	p-values	Decision to Ho	Interpretation
Quality of Life	Male	5.42	-2.891	0.004	Reject	Significant
	Female	5.66				
Wealth and Economic Growth	Male	5.24	-2.458	0.014	Reject	Significant
	Female	5.48				
Education and Human Capital Development	Male	5.59	-4.314	<.001	Reject	Significant
	Female	5.97				
Job Creation and Employment	Male	5.53	-2.941	0.004	Reject	Significant
	Female	5.85				
Health and Wellness	Male	5.64	-3.947	<.001	Reject	Significant
	Female	5.98				
Clean Environment and Green Industry	Male	5.53	-3.500	0.001	Reject	Significant
	Female	5.84				

Table 11 presents the variation of responses when the resident was grouped based on their sex. In the responses of the resident when grouped according to sex, all of the p-values were lower than the set p-value of 0.05; hence, the hypothesis was rejected and a significant difference was concluded to exist.

Table 12 specifies an analysis of variance in the responses of the respondents when they are grouped according to their occupation. It can be inferred from the results of the inferential statistics that the respondents have varying perspectives on the socio-economic dimensions of Lipa when they were grouped according to their occupation. This may be attributed to the type of occupation that they are currently working upon implementation of the COVID-19 response.

TABLE 12. Significant Difference in the Responses of the Residents When Grouped According to Occupation

	F-values	p-values	Decision to Ho	Interpretation
Quality of Life	3.512216	<0.001	Reject	Significant
Wealth and Economic Growth	3.886958	<0.001	Reject	Significant
Education and Human Capital Development	3.330056	<0.001	Reject	Significant
Job Creation and Employment	2.203113	0.02	Reject	Significant
Health and Wellness	3.096878	<0.001	Reject	Significant
Clean Environment and Green Industry	3.754678	<0.001	Reject	Significant

*Challenges Encountered by the Residents and LGU Officials/Employees Upon Implementation of COVID-19 Response*

Based on the conducted focus group discussion, the following challenges were encountered - the residents were able to come up with the following (1) financial concerns, (2) adoption of the COVID-19 setup, and (3) health and welfare. On the other hand, the LGU Officials/Employees the following were identified (1) public expectations, (2) business closures, (3) rapid urbanization, and (4) situational adjustments.

*Proposed Strategies*

As observed from the data analysis, the proposed strategies were formulated to provide a recommendation that may be implemented to bolster the socio-economic services in Lipa City. This was generated based on the lowest mean and challenges encountered by the residents and LGU officials and employees of Lipa City regarding the status of the socio-economic dimensions of Lipa, namely: financial concerns, adoption of the COVID-19 setup, health and welfare, public expectations, income uncertainties, employment risks and hazards, and situational adjustments. The study presented distinct results for each key area in order to address the gaps identified during the implementation of the COVID-19 response in Lipa as it strives to transition to a better post-pandemic era.

IV. CONCLUSIONS

1. Most of the respondents were female under the age bracket of 39 and below and categorized themselves as None on the occupation list.
2. The quality of life, and wealth and economic growth were assessed to be transformed to a great extent, while the education and human capital development, job creation and employment, health, and wellness, as well as the clean environment and green industry dimensions, were transformed to a very great extent.
3. When grouped according to age, the responses of the participants vary significantly in the dimensions of quality of life, education and human capital development, and health and wellness, meanwhile, wealth and economic growth, job creation and employment, and clean environment and green industry do not vary significantly. Additionally, both sex and occupation reject the hypothesis and conclude that a significant difference exists in all socio-economic dimensions.

4. The residents and LGU Officers/Employees of Lipa have encountered challenges on the dimensions of quality of life, health and wellness, as well as wealth and economic growth.
5. The strategy is being proposed to boost the delivery of socio-economic services in the City of Lipa.

V. RECOMMENDATIONS

In light of the findings and conclusions, the following recommendations are given:

1. In terms of quality of life, the local government unit, through their City Social Welfare and Development, may adopt programs, activities, and projects such as having a database of specific receipts consistent with the updated roster of the social services of the LGU that will ensure proper allocation and distribution of funds to the affected areas and vulnerable groups of the community;
2. Regarding wealth and economic growth, the local government unit, through the City Licensing and Permits Office, may conduct orientation and re-orientation activities aligned with the programs, activities and projects of the national government on the operations of the Business One Stop Shop and other business-related establishments for continuous growth and development of the economic sector;
3. As to education and human capital development, the local government unit, through the City Community Affairs Office, may conduct seminars, training, and workshops that will aid the community to be acquainted with new knowledge and skills necessary for the development of the citizenry;
4. On matters on job creation and employment, the local government unit, through the City Public Employment Service Office and Department of Labor and Employment, may intensify the information dissemination through promotional activities such as conduct of symposia, and retooling system in coordination with the private sectors, non-governmental organizations and other civic groups that will raise awareness among members of the community regarding the available job opportunities in their locale;
5. Concerning health and wellness- spearheaded by the Department of Health, the local government unit through their City Health Office and consistent with the espousals of the Universal Health Care Act may establish a localized programs specific for each of the five topmost causes of morality;
6. As for a clean environment and green industry, the local government unit through the City Planning and Development Office, City Environment and Natural Resources Office, Department of Agriculture, and Department of Trade and Industry, may establish linkages between public and private sectors to ensure sufficient, diverse, and nutritious food as well as generate income and employment for farmers, workers, and traders in the entire agricultural industry;

7. The proposed strategies may be subject to discussion, implementation, and evaluation to be initiated by the local government unit and the other interrelated agencies; and
8. Future researchers may conduct similar studies integrating additional variables such as digital transformation, and public and private partnerships to further enhance the study and contribute to the country's socio-economic transformation.

REFERENCES

[1]. OECD (2021), COVID-19 and Well-being: Life in the Pandemic, OECD Publishing, Paris, <https://doi.org/10.1787/1e1ecb53-en>.

[2]. Sachs, J., Kroll, C., Lafortune, G., Fuller, G., & Woelm, F. (2021). *Sustainable development report 2021*. Cambridge University Press.

[3]. Sachs, J., Kroll, C., Lafortune, G., Fuller, G., & Woelm, F. (2022). *Sustainable development report 2022*. Cambridge University Press.

[4]. Carroll D, Gardner P, Kay BA, Osterholm M, Ryan ET. Transformation of the developing world: socioeconomic matrix. *Emerg Infect Dis*. 2004 Nov;10(11):2049. doi: 10.3201/eid1011.040797\_03. PMID: 16010742; PMCID: PMC3329049

[5]. Fatimah, Y. A., Govindan, K., Murniningsih, R., & Setiawan, A. (2020). Industry 4.0 based sustainable circular economy approach for smart waste management system to achieve sustainable development goals: A case study of Indonesia. *Journal of Cleaner Production*, 269, 122263

[6]. Mukarram, M. (2020). Impact of COVID-19 on the UN sustainable development goals (SDGs). *Strategic Analysis*, 44(3), 253-258.

[7]. Ottersen, O. P., & Engebretsen, E. (2020). COVID-19 puts the sustainable development goals center stage. *Nature Medicine*, 26(11), 1672-1673.

[8]. Polasky, S., Kling, C. L., Levin, S. A., Carpenter, S. R., Daily, G. C., Ehrlich, P. R., ... & Lubchenco, J. (2019). Role of economics in analyzing the environment and sustainable development. *Proceedings of the National Academy of Sciences*, 116(12), 5233-5238.

[9]. Ashraf, B. N. (2020). Socioeconomic conditions, government interventions and health outcomes during COVID-19. *Covid Economics*, 37(14), 141-162.

[10]. Brauner, J. M., Mindermann, S., Sharma, M., Johnston, D., Salvatier, J., Gavenčiak, T., & Kulveit, J. (2021). Inferring the effectiveness of government interventions against COVID-19. *Science*, 371(6531), eabd9338.

[11]. Cullen, W., Gulati, G., & Kelly, B. D. (2020). Mental health in the COVID-19 pandemic. *QJM: An International Journal of Medicine*, 113(5), 311-312.

[12]. Dergiades, T., Milas, C., Panagiotidis, T., & Mossialos, E. (2020). Effectiveness of government policies in response to the COVID-19 outbreak. *SSRN Electronic Journal*, 1-25.

[13]. Duan, T., Jiang, H., Deng, X., Zhang, Q., & Wang, F. (2020). Government intervention, risk perception, and the adoption of protective action recommendations: Evidence from the COVID-19 prevention and control experience of China. *International Journal of Environmental Research and Public Health*, 17(10), 3387.

[14]. Duan, L., & Zhu, G. (2020). Psychological interventions for people affected by the COVID-19 epidemic. *The lancet psychiatry*, 7(4), 300-302.

[15]. Fauzi, M. A., & Paiman, N. (2021). COVID-19 pandemic in Southeast Asia: intervention and mitigation efforts. *Asian Education and Development Studies*, 10(2), 176-184.

[16]. He, Z., Chen, J., Pan, K., Yue, Y., Cheung, T., Yuan, Y., & Xiang, Y. T. (2020). The development of the COVID-19 Psychological Resilience Model and its efficacy during the COVID-19 pandemic in China. *International Journal of Biological Sciences*, 16(15), 2828.

[17]. Kaul, S., Akbulut, B., Demaria, F., & Gerber, J. F. (2022). Alternatives to sustainable development: what can we learn from the pluriverse in practice?. *Sustainability Science*, 17(4), 1149-1158.

[18]. Leal Filho, W., Brandli, L. L., Lange Salvia, A., Rayman-Bacchus, L., & Platje, J. (2020). COVID-19 and the UN sustainable development goals: threat to solidarity or an opportunity?. *Sustainability*, 12(13), 5343.

[19]. Li, Y., Zhang, R., Zhao, J., & Molina, M. J. (2020). Understanding transmission and intervention for the COVID-19 pandemic in the United States. *Science of the Total Environment*, 748, 141560.

[20]. Manjula Bai, H. (2020). The Socio-Economic Implications of the Coronavirus Pandemic (COVID-19): A Review. *ComFin Research*.

[21]. Nundy, S., Ghosh, A., Mesloub, A., Albaqawy, G. A., & Alnaim, M. M. (2021). Impact of COVID-19 pandemic on socio-economic, energy-environment and transport sector globally and sustainable development goal (SDG). *Journal of Cleaner Production*, 312, 127705.

[22]. Reznichenko, S. M., Takhumova, O. V., Zaitseva, N. A., Larionova, A. A., Dashkova, E. V., Zotikova, O. N., & Filatov, V. V. (2018). Methodological aspects of assessing factors affecting the sustainable development of the region. *Modern journal of language teaching methods*, 8(11), 69-79.

[23]. Shulla, K., Voigt, B. F., Cibian, S., Scandone, G., Martinez, E., Nelkovski, F., & Salehi, P. (2021). Effects of COVID-19 on the sustainable development goals (SDGs). *Discover Sustainability*, 2(1), 1-19.

[24]. Ranjbari, M., Esfandabadi, Z. S., Zanetti, M. C., Scagnelli, S. D., Siebers, P. O., Aghbashlo, M., ... & Tabatabaei, M. (2021). Three pillars of sustainability in the wake of COVID-19: A systematic review and future research agenda for sustainable development. *Journal of Cleaner Production*, 297, 126660.

[25]. Shi, L., Han, L., Yang, F., & Gao, L. (2019). The evolution of sustainable development theory: Types, goals, and research prospects. *Sustainability*, 11(24), 7158.

[26]. Thacker, S., Adshead, D., Fay, M., Hallegatte, S., Harvey, M., Meller, H., ... & Hall, J. W. (2019). Infrastructure for sustainable development. *Nature Sustainability*, 2(4), 324-331.

[27]. Wang, Q., & Huang, R. (2021). The impact of COVID-19 pandemic on sustainable development goals—a survey. *Environmental Research*, 202, 111637.