

Pre and Periodic COVID-19 Pandemic Impact Assessment of the Local People at the Vang Nam Yen (Cool Pool) Natural Tourist Site, Napawan Village, Khamkeut District, Bolikhamxay Province, Lao PDR.

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Abstract-Vang Nam Yen's tourism attractions provide locals with revenue. Due of its popularity, local and international visitors visit. A rise in tourism improves the country's economy, and management of tourism site enhances local revenue. However, the pandemic affected the tourism attraction. This research examined the economic implications of the COVID-19 epidemic on the Vang Nam Yen natural tourism attraction and surveyed public opinion. The sample group interviewed only those directly affected by a method (purposive sampling). A key informant interview with the target population was conducted. The interview also focused on the sample population that was directly impacted and the families who supported the tourism industry; there were 69 families in total, divided into two groups, such as businessmen, and included: 7 family homestays and bungalows; 4 family grocery stores; 1 family souvenir shop; and 36 family restaurants. There are eight families of daytime and nighttime security personnel, seven families of cleaning personnel, two families of tour guides, three families of vehicle attendants, and one family of restaurant employees. The findings of the study revealed that the income before the epidemic reached 14,939.76 USD; during the epidemic, it decreased to 1,047.29 USD, accounting for 92.49 percent; expenditures were 992.20 USD before the epidemic; they decreased to 368.92 USD during the epidemic, accounting for 62.82 percent.

The degree of public opinion and each aspect's consequences are evaluated as follows: As a total, during the economic period before to the epidemic's spread, the average value and standard deviation are equal to 1.62 ± 0.61 , which is the lowest level; during the epidemic time, they are equal to 3.52 ± 0.77 , which is the greatest level; With a mean and standard deviation of 2.26 ± 0.97 , respectively, the societal effect prior to the emergence of the COVID-19 illness is categorized as being at a minor level. The mean and standard deviation values for the pandemic era are 2.91 ± 0.95 , suggesting a medium level. The average value and standard deviation for the environmental effect prior to the spread of the COVID-19 virus as a whole are 4.36 ± 0.58 , which is at the greatest level; the average value and standard deviation during the epidemic phase are 2.43 ± 0.88 , which is at a low level; In many levels of epidemic spread, the effect of culture prior to the spread of the COVID-19 disease has an average value and standard deviation equal to 4.03 ± 0.71 , which is at a low level.

Indexed Terms- Impact of COVID-19, socio-economic, Vang Nam Yen tourism site, natural tourism site

I. INTRODUCTION

In many nations, including Laos, the spread of the COVID-19 virus has an impact on the economy and the lives of millions of people. Several businesses

have been impacted, particularly the tourist sector, which has been affected since December 2019 [1]. As the epicenter of the outbreak in Wuhan Districts, Hubei Region, China, animals are the primary source of the sickness and are the ones that first transmit it to humans [2-3]. March 12, 2020, the Globe Health Organization declared COVID-19 to be a worldwide epidemic (pandemic), halting travel throughout the world and sharply decreasing revenue (WHO, 2020a). Beginning in December 2019 and continuing through April 2020, the COVID-19 outbreak has resulted in a global 22.7 percent decline in foreign travelers. Compared to the same month in 2019, there were more than 97 percent fewer visitors. According to the United Nations World Tourism Organization's report, the first quarter of 2020 saw a decline in the tourism sector as a consequence of the COVID-19 impacts, which have persisted since the end of 2019[4]. The number of foreign visitors plummeted by 97% in April compared to 2019, as a consequence of all tourist-friendly nations enacting travel restrictions to stop the COVID-19 virus from spreading. In Lao PDR, livelihoods of people have been impacted by the COVID-19 outbreak and accompanying control efforts. The economic effects of COVID-19 were felt in 2020 and the first quarter of 2021, despite the fact that attempts to limit the epidemic were generally successful. Overall, compared to a non-COVID-19 scenario, it is anticipated that the poverty rate (calculated as \$3.20 per day, 2011 PPP) would rise by 1.7 percentage points in 2020 [1, 5]. The pandemic has had a significant impact on Laos, notably on the tourist sector, one of the country's five main industries [1, 5]. ADB predicts that the decline in international tourism would cost Lao PDR 41.5 million US dollars in 2020, or around 0.23 percent of its gross domestic product [1-2, 5-6]. Vang Nam Yen, a natural tourism destination in Napawan Village, Khamkeut District, Bolikhamxay Province, Lao PDR, has been impacted by the COVID-19 pandemic. Vang Nam Yen is one of the well-known local and international tourist spots that brings in revenue for the neighborhood. The influx of visitors boosted the local economy and raised revenue from operating tourist sites, however since March 2020, travel has been halted due to the COVID-19 virus epidemic. In the first three months of 2020, there were as many as 1,543 visitors, including 892 from outside the country. However,

from April to December, the number of visitors fell due to the COVID-19 disease epidemic. Only 1,807 visitors visited in the nine months, and 51 of them were foreigners (Napawan Village Administration Office, 2020), which led to the establishment of hotels, stores, and restaurants in Vang Nam Yen.

Therefore, the current study assessed how the COVID-19 epidemic affected Vang Nam Yen's natural tourist attractions in Napawan Village, Khamkeut District, Bolikhamxay Province, Lao PDR. Its main objectives were to compare the pre and periodic effects of the COVID-19 pandemic on the economics of local livelihoods and assess the level of public perception regarding the epidemic's effects on the Vang Nam Yen natural tourist attractions site.

II. REVIEW OF THE LITERATURE

2.1 Definition of COVID-19

Coronaviruses are members of the subfamily Coronaviridae, which has four genera. Gammacoronavirus and Deltacoronavirus exclusively infect birds and certain mammals, but Alphacoronavirus and Betacoronavirus members infect mammals [7]. Both the Middle East respiratory syndrome-related coronavirus (MERS-CoV) and the severe acute respiratory syndrome coronavirus (SARS-CoV) are very pathogenic coronaviruses that infect people[8]. In December 2019, the new coronavirus pandemic (2019-nCoV) was found in Wuhan, Hubei province, China, as a cluster of pneumonia patients. On January 7, 2020, it was officially declared that the pneumonia was caused by a new coronavirus and the World Health Organization (WHO) proclaimed a worldwide pandemic in March 2020 [9-12].

2.2 Socio-economic Impact of COVID-19

The pandemic of COVID-19 has had a significant effect on human life, taking about 900,000 deaths globally. In the absence of a vaccine, several countries have enacted social distancing regulations to curb the spread of the virus. These initiatives, including nationwide lockdowns, the closure of non-essential companies and schools, and the restriction of everyday travel and social gatherings, have disrupted lives and activities [1-2]. Traumatic events,

feelings of loneliness, and financial losses have all dramatically changed people lives as a consequence of COVID-19; these are actual factors that account for the beneficial effects that COVID-19 has had on our wellbeing. A collection of study has looked at the effects that social isolation and traumatic events have on one's health, especially in the setting of major natural and human calamities [13-15].

As of September 2020, the WHO has recognized the COVID-19 virus as a major threat to public health [16]. It has infected 2,947,633 individuals in 215 countries, with 93,3444 deaths [17]. In the majority of nations, the COVID-19 mortality rate was estimated to be 3.61 percent [18], with a higher prevalence among the elderly and those with underlying conditions such as diabetes, cardiovascular disease, chronic respiratory illness, high blood pressure, and cancer [10, 13]. The COVID-19 epidemic has caused a shocking loss of life on a global scale and poses an unprecedented threat to food systems, public health, and the workplace. The pandemic has had a severe effect on society and the economy. The number of undernourished people, which is presently projected to be close to 690 million, might increase by as many as 132 million by the end of the year, and tens of millions more people face the risk of living in extreme poverty [19].

The fall of economic activity has had disastrous economic repercussions, bringing several countries to the verge of recession. Numerous research [20-24] have shown substantial drops in expenditure and labor market outcomes evaluated by employment. In addition to the financial consequences, these social isolation practices may adversely affect wellbeing and mental health by escalating unpleasant feelings including tension, anxiety, and sadness [14-15]. As a result, there are more and more requests to take into account how COVID-19 may affect people's psychological well-being and mental health.

2.3 Impact of COVID-19 on Tourism Sector

Tourism is a "social, cultural, and economic phenomena that results in the migration of people to a nation, foreign location, or environment for personal or commercial interests" [4, 27]. Tourism is a labor-intensive business that contributes significantly to

worldwide employment. Accommodation, transportation, food and drink, retail and culture, hospitality, and sports are all related businesses that support the tourist industry [29, 33]. For a nation's citizens, the tourist industry offers advantages and possibilities. The tourist industry is a part of the economy's service sector and has its own distinctive qualities [30-31]. The worldwide tourism industry contributes more than 10% of the world's GDP and 30% of its services exports [32]. Since many governments implement travel restrictions, travel bans, close airports, and cause large passenger cancellations, the tourist industry is one of the sectors of the economy that has the most influence. The COVID-19 epidemic causes substantial harm on a worldwide scale of tourism. Due to the limitations, curfews, work-from-home rules, and quarantines, the COVID-19 epidemic has spread around the globe, shocking practically all sectors [4, 32]. The COVID-19 pandemic's impact on the health and economy had a negative impact on the tourist sector. The UNWTO has calculated that the greater spread of the new coronavirus would result in a loss of around 1.1 billion international tourist visitors, a loss of US\$ 910 to 1.1 trillion in export income, and 100 to 120 million jobs [4, 25-26]. Due to the COVID-19 epidemic, the travel and tourist industry is one of the most negatively impacted sectors of the economy [26]. The tourist industry is significantly impacted by the health and economic issues brought on by the epidemic. The UNWTO predicts that the new coronavirus will cause a loss of between 100 and 120 million employment, 910 to 1.1 trillion dollars in lost export profits, and a loss of around 1.1 billion international visitor arrivals [4, 25-26]. The COVID-19 epidemic caused the tourist sector to lose approximately US\$ 820 billion in sales globally [28].

2.4 Impact of COVID-19 on livelihood

A fundamental part of surviving is having a livelihood. A livelihood consists of individuals, their capacities, and their arrangements. Food, money, and possessions are examples of means of subsistence. Livelihoods include all assets (capabilities) necessary to meet fundamental requirements, such as food, clothes, housing, cultural values, and social connections [34]. A important part of earning a living is having a livelihood. It includes all of the skills, resources, and actions needed by individuals to get

basic requirements. Although the COVID-2019 crisis is primarily regarded as a public health crisis, it will have a much wider impact on the global economy in the long run [32]. This will cause global socio-economic disruptions that will not only worsen people's well-being and standard of living but also threaten the social nets, markets, and food security that are essential to life. This epidemic poses a threat to both lives and livelihoods [5, 14, 32, 35].

III. METHODS AND MATERIALS

3.1 Study Area

The "water fountain born on the mountain" is how people refer to the naturally occurring tourist destination known as Vang Nam Yen (Cold Pool). People who like swimming are said to have long lives. Both local and international tourists enjoy visiting this prominent tourist spot. The community of Napawan Village, Khamkeut District, Bolikhamxay Province, Lao PDR was chosen as target to serve as a representation in this research.

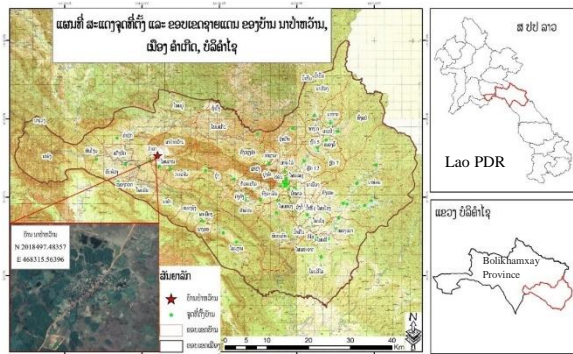


Figure.1. Study location

3.2 Methods and materials

The methodologies employed in the present research included both qualitative and quantitative approaches. Additionally, data collecting methods included interviews. In contrast to the qualitative method, which offered a greater knowledge of the underlying reasons and a range of perspectives on the study, the quantitative strategy included the collecting of numerical data for measuring the statistics acquired.

Additionally, the study integrated the use of primary and secondary data sourcing techniques. The

interview and case studies were used as the study's main sources, while the internet, journals, and published publications were used to gather secondary data.

A. Interview

With the "key informant interview," which is a direct interview of the stakeholders or the target group that is most appropriate for the study, the sample group utilized a particular technique (purposive sampling) to only interview the stakeholders who were directly impacted and the families who supported the tourism industry; there were 69 families in total, divided into two groups, such as businessmen, this included: 7 family homestays and bungalows; 4 family grocery stores; 1 family souvenir shop; and 36 family restaurants. The labor services group includes 8 families of daytime and nighttime security personnel, 7 families of cleaning personnel, 2 families of tour guides, 3 families of vehicle attendants, and 1 family with restaurant employees.

Using the Krejcie and Morgan formula [36], the sample group is chosen, the level of acceptable expectation is set at 5%, and the level of confidence is set at 95%. The formula estimates the proportion of the population and sets the proportion of the characteristics of interest in the population to be equal to 0.5. With a small population of 10 or more, the following formula may be used to determine the sample size for the population:

$$n = \frac{x^2 N p (1-p)}{e^2 (N-1) + x^2 p (1-p)}$$

n = Sample size

N = Population size

e = An acceptable level of random sampling expectation

x^2 = The scale value at which df is equal to 1 and the confidence level 95% ($x^2 = 3.841$)

P = Proportion of characteristics of interest in the population (if not known, specify p = 0.5)

B. Data analysis

The data was input into the computer using Excel to help in the analysis of the approximative data and the quality data by determining the percentage. The data analysis was generated from the interviews from the Press, Culture, and Tourism Office, village administrative office, and local stakeholders to make a table and produce a report, use the average value (mean) and standard deviation (SD). Analysis of basic data or personal factors of respondents is used to analyze frequency and percentage values by using descriptive statistics.

The Likert Rating Scale (1932), which includes 5 levels, is used to assess the public's levels of opinion and engagement [37].

A score of 5 = very high; a score of 4 = high; a score of 3 = medium; a score of 2 = little; and a score of 1 = very little

The width of the score was computed as below:

$$= \frac{\text{The highest score} - \text{The lowest score}}{\text{Number of range of score}}$$

The width of the grade = $\frac{5-1}{5} = 0.8$

Table.1. Table of range of score interval

Range of score	Level of oppinion
1.00 – 1.80	Very little
1.81 – 2.60	Little
2.61 – 3.40	Medium
3.41 – 4.20	High
4.21 – 5.00	Very high

IV. RESULTS

4.1 Economic impact of pre and during pandemic

Representatives of the sample group from Napawan Village, Khamkeut District, Bolikhamxay Province, Lao PDR, including their income and expenditure data, can be summarized as follows according to the study of the economic impact before and during the spread of the COVID-19 disease at the Vang Nam Yen natural tourism site, according to the 58 respondents to the questionnaire:

A. Impact on income

The revenue of those working in the tourist site in Vang Nam Yen was impacted by the COVID-19 disease's spread, as shown by the income of villagers that were questioned about their typical monthly salary both before and during the pandemic as part of the data collection on income as indicated in table 2.

Table.2. income information for the sample population

Items	Income sources	No. Respondents	Pre-pandemic		During the pandemic		Percentage of decreasing
			Total (USD)	Average/Month (USD)	Total (USD)	Average/Month (USD)	
Hotel							
1.	Homestay	5	1,630	272	76	13	95.35
2.	Bungalow	2	186	93	12	6	93.75
Total		7	1,816	259	76	11	95.83
Services							
1.	Souvenir	1	87	87	23	1	98.66
2.	Restaurants	29	11,944	412	425	13	96.73
3.	Grocery stores	3	87	29	23	2	94.66
4.	Tour guides	2	47	23	0	0	100
Total		35	12,165	269	471	11	96.12
Security personnel and other services							
1.	Maid/House keeper	5	186	37	116	23	87.5
2.	Vehicle attendants and	3	431	144	210	70	48,64

	safety						
3.	Security guard	7	338	48	210	30	62.06
4.	Labor services	1	93	93	47	0	100
Total		16	1,048	131	582	73	44.44
Grand Total			15,029	259	1,054	18	92.49

Note: Currency exchange rate 1 USD equal 17,180.00 Laotian Kip

Table 2 demonstrates that there is a decline in revenue during the outbreak. Before the outbreak, many individuals earned 15,029 USD, but only 1,054USD remained after the epidemic, a decline of 92.49 percent. On the service segment, impact is felt more than in other areas. Prior to the outbreak, the revenue reached 12,165USD, leaving just 471USD, or 96.12% of the total. The rationale is because the tourist service industry employs a large workforce, and when an epidemic strikes, the steps to stop the COVID-19 disease's spread specified in Prime

Minister's Order No. 06/PM of March 29, 2020 have a disproportionately negative impact on the service industry.

B. Impact on Expenditure

The expenditures of those working in the tourism business in Vang Nam Yen have been impacted by the COVID-19 disease's outbreak. It is reflected in the residents' expenses. The study sought information on typical monthly spending both before and during the outbreak as demonstrated in the table 3.

Table.3. Expenditure information for the sample population

Items	Source of Expenditure	Pre-pandemic		During pandemic		Percentage of decreasing
		Total (USD)	Average/Month (USD)	Total (USD)	Average/Month (USD)	
1	Building renting	349	349	186	186	53.33
2	Water and electric	380	9	185	185	48.65
3	Staff salary	233	233	0	0	
4	Tax, customs	24	2	0	0	
5	Label tax	6	0	0	0	
6	Sale promotion	6	0	0	0	
Total		998	17	371	6	62.82

In the period prior to the spread of COVID 19, Table 3 demonstrates that entrepreneurs had a total investment expenditure of 998.14USD. During the epidemic, it was observed that the expenditure was reduced to only 371.13 USD, accounting for 62.82 percent. In this period, the cost of water and electricity decreased from 379.98 USD to only 184.87 USD, 5 percent equal to 48.6 percent, followed by building rent from 349.24 USD to 186.26 USD, there were no costs associated with the epidemic since the operator ended the employment of the workers for their salaries, and there was no rehiring because the circumstances of the pandemic prevented many visitors from being able to handle themselves.

The study of the level of public opinion on the impact of the spread of the Covid-19 disease includes: economic, social, environmental and cultural aspects. The details are as follows:

A. Level of local opinion on COVID-19 Impact on economic

Before the pandemic, COVID-19's economic effect was rated as low, with an average value and standard deviation of 1.62 ± 0.61 ; after the epidemic, it was rated as extremely high, with an average value and standard deviation of 3.52 ± 0.77 . The ability to engage in tourism businesses that could generate income for the people in the village to engage in a variety of occupations, especially the tourism business and tour guiding due to the arrival of many tourists, demonstrates that the economic condition of the people was at a good level prior to the outbreak of the COVID-19 disease. A variety of employment

4.2 Level of local opinion on COVID-19 Impact

emerged as a consequence of the advent of homestay tourism, bungalows, and other tourist-related businesses, providing people in the neighborhood with additional work. Although there is more work in the community, the economy is most negatively impacted during an outbreak since there are less

visitors. The termination of safety-related activities in compliance with the measures to stop the spread of the COVID-19 illness has a particularly negative impact on the livelihood of the villagers.

Table.4. Level of local opinion on the impact of COVID-19 to economic

Items	EconomicAspect	Pre-pandemic		Interpretation	During pandemic		Interpretation
		\bar{X}	S.D		\bar{X}	S.D	
1	Tourism results in better living conditions	1.53	0.6	Little	2.81	0.74	Medium
2	The state of the tourism business	1.4	0.49	Very little	2.45	0.59	Little
3	The main income comes from the tourism business	1.91	0.86	Little	3	1.17	Medium
4	Additional income comes from the tourism business	1.34	0.48	Very little	4.72	0.49	Very high
5	Tourism business can create jobs for you and people	1.5	0.5	Very little	3.66	0.89	High
6	Tourism business leads to income distribution	1.91	0.73	Little	2.43	0.8	Little
7	After the community became a major tourist destination, the collection increased	1.83	0.78	Little	3.02	1.15	Medium
8	Tourism contributes to the economic well-being of the community	1.69	0.6	Very little	4.43	0.77	Very high
9	The prices of consumer goods and consumption are high	2.33	0.69	Little	2.14	0.87	Little
10	resulting in increased investment within the community	1.66	0.55	Very little	4.17	0.86	High
11	Domestic employment occurs	1.19	0.4	Very little	4.48	0.5	Very high
12	People in the village have changed careers	2.09	0.92	Little	3.6	0.56	High
13	Make people within the community earn more	1.47	0.5	Very little	3.57	0.75	High
14	causing expenditure and debt burden to increase	1.62	0.67	Very little	2.52	0.71	Little
15	Can earn from restaurant services	1.41	0.53	Very little	4.12	0.75	High
16	Homestays, guest houses, bungalow hotels are affected	1.36	0.52	Very little	4.05	0.85	High
17	The need to move to another profession	1.36	0.52	Very little	4.62	0.62	Very high
TOTAL		1.62	0.61	Little	3.52	0.77	High

Table 4 demonstrated that prior to the outbreak, domestic work had the mean and standard deviation of 1.62, and 0.61 indicated that local people had

received little negative economic effect from tourism activities. With the lowest mean and standard deviation, which are (1.19±0.40). This shows that

there was employment in the village prior to the outbreak of COVID-19, allowing people to earn money from employment in tourism business activities. Some families were able to generate the main income for the family, and some families persuaded their own family members to join other professions such as maids, cooks, cleaning staff, and security guards. The average level of public opinion during the disease outbreak is very high, and the maximum level of opinion has a standard deviation of 4.48 ± 0.50 , indicating that the COVID-19 pandemic has had a significant negative impact on employment in the village as a result of the suspension of activities.

The average value and standard deviation equal to (1.36 ± 0.52) , which are at the lowest level, reflect the need to change careers in the period prior to the spread of the COVID-19 disease. This is because, in that time, people employed in certain professions had a stable income and a career that could be done within their own locality with a high income in the tourism business. As a result, many professionals in this industry do not need to change their line of work. However, there is a level of opinion with an average value and standard deviation equal to 4.62 ± 0.62 at the highest level when there is an epidemic of COVID-19, which demonstrates that during this time, people are most affected and there is a need to switch careers because there are precautions to prevent the spread of the disease. As a result, businessmen must stop operating their businesses and switch to other careers like growing black ginger and sweet potatoes. When the COVID-19 epidemic spread, people were most impacted in the average value and the standard deviation equal to (1.34 ± 0.48) is at the highest level because there are people who used to work. Prior to the spread of the disease, the supplementary income of the people has an average value and the standard deviation equal to (4.72 ± 0.49) is at the lowest level, meaning that people's income is unaffected and they can go and sell goods as per their needs.

Domestic employment may be created by tourism-related enterprises before an outbreak. Before the spread of COVID-19, tourist enterprises were able to provide employment for residents of the village since individuals could go to work and make money for

themselves. There is an average value and standard deviation equal to (1.50 ± 0.50) at the lowest level. Public opinion is at an average level and the standard deviation is at a high level (3.66 ± 0.89) as the disease spreads. It demonstrates that while the disease is spreading, the tourism industry cannot provide employment for the villagers since the company owners must temporarily shut down their operations.

Additionally, when the industry reopens, the number of tourist excursions is not as large as it should be. There are fewer international travelers. Since most local visitors carry their own food from home, the tourism industry suffers greatly during the epidemic's progress and is unable to provide employment for the local populace.

The general consensus among the locals is that before the pandemic, all of their sources of income were unaffected since they could make money from a range of tourist-related activities, which improved living conditions in the neighborhood, particularly in Napawan Village. However, the pandemic had a significant negative influence on the majority of the economic sectors in the Van Nam Yen tourist destination, as shown by the high mean and standard deviation of 3.52 and 0.77, respectively.

Prior to the COVID-19 disease's emergence, a range of jobs were available in the town as a result of the influx of visitors. Due to homestays and bungalows, there were more domestic investors, which led to more people in the area being employed and earning more money. People have been severely impacted by the COVID-19 disease's spread; some families whose primary source of income is from the tourism industry have been directly impacted; employment within the village has decreased as a result of people having to adjust their incomes to move to other professions during the disease's spread, which is consistent with the findings of Supatta and Daun (2020), who investigated the COVID-19 disease's effects and discovered that the economic impact was significant [39].

B. Level of local opinion on COVID-19 Impact on social

Prior to the pandemic, individuals shared traditional commodities, products, and foods which indicated on

a perception level of the standard value equal to (1.69 ± 0.98) , which is arranged at a low level, showing that the people have distributed traditional goods to tourists including: silk, silk, home madliqour, and distilled liquor are distributed to tourists who travel in, mostly tourists from other provinces and foreign tourists. However, the distribution of local goods by the inhabitants has been significantly impacted, domestic visitors seldom

purchase local handicrafts as presents or souvenirs. Therefore, in tourist sites, the distribution of traditional items, products, and food of the people is greatly impacted when there is an outbreak of COVID-19 as shown in table 5.

Table.5.Level of local opinion on the impact of COVID-19 on social

Items	Socialaspect	Pre-pandemic		Interpretation	During pandemic		Interpretation
		\bar{X}	S.D		\bar{X}	S.D	
1	Make getting more information	2.69	1.1	Medium	2.97	0.77	Medium
2	There is an increase in migrant workers	1.52	0.84	Very little	3.53	1.6	High
3	Cooperation in the organization of activities of people in the community	2.24	0.47	Little	3.1	0.74	Medium
4	A conflict arose within the village	1.98	0.98	Little	3.05	1	Medium
5	There is a drug problem within the community	1.55	0.75	Very little	1.71	0.68	High
6	Social unrest	3.19	1.29	Medium	2.21	1.12	Little
7	The local language is reduced	2.83	1.01	Medium	1.91	0.71	Little
8	Be influenced to modify behavior or imitate tourists	2.62	1.3	Medium	3.74	1.12	High
9	Distribution of goods, traditional products, traditional food	1.69	0.98	Little	3.95	0.78	High
Total		2.57	0.93	Little	2.77	0.98	Medium

Social unrest in the time before the epidemic spread, with a mean value and standard deviation of 3.19 ± 1.29 at a middle level, and during the epidemic's spread, with a mean value and standard deviation of 2.21 ± 1.17 at a low level, indicates that crime, especially theft, is one of the problems found in the village. It indicates that despite the epidemic's spread, the issue has not been adequately addressed since the individual in question is not a local resident but rather a visitor from a nearby village. As a result, the issue has persisted.

In the moderate degree of behavior modification, the mean value and standard deviation are equal to (2.62 ± 1.30) , while in the high level of behavior modification during an epidemic, they are equivalent to (3.74 ± 1.12) . It demonstrates that people's social and professional behavior have altered, which is crucial throughout the pandemic. For their own protection, people remain at home, put on masks

before leaving, and use alcohol gel to wash their hands.

This leads to the conclusion that, prior to the COVID epidemic's growth, tourism increased villager knowledge, particularly of the spoken language, which may, to a certain degree, facilitate communication with other nations. People may work together to organize events in the village, such as village festivals and ethnic New Year celebrations, and distribute local goods to visitors. They are all present in the village, which is a drawback, but with excellent management, social issues won't occur. The primary issue that requires immediate attention is the village's crime problem. The distributors of regional goods and foods are the ones who are most impacted by the epidemic's spread. More labor migrated because of individuals changing their behavior and adopting new lifestyles to shield themselves from the epidemic's spread. People who are native to different regions and return to their original place, which is

consistent with Yuthana and Dan's findings (2020). The societal effect is modest overall 3.30 ± 0.37 is the same as the average and standard deviation values. Particularly challenging religious rituals must be abandoned, while public actions must be conducted with more caution, changing everyday life ($\bar{x} = 3.27$), and fostering better family bonds.

C. Level of local opinion on COVID-19 Impact on the environment

The COVID-19 disease's pre-epidemic impact on the environment as a whole has an average value and standard deviation equal to (4.36 ± 0.58) , which is at the highest level, while the epidemic's average value and standard deviation equal to (2.43 ± 0.80) are at a

low level. This indicates that the pre-epidemic period is when the environment has been most negatively impacted because of the high number of visitors, who increase the amount of waste and pollution in the area.

The average value and standard deviation for the COVID-19 disease's overall impact on the environment are at their highest levels of 4.36 ± 0.58 before the pandemic, while they are at their lowest levels of 2.43 ± 0.80 during the epidemic. This indicates that the pre-epidemic period was when the environment was most negatively impacted by tourism, which raises the amount of waste and pollution in the environment.

Table.6. Level of local opinion on the impact of COVID-19 on the environment

Items	Environmental aspect	Pre-pandemic		Interpretation	During pandemic		Interpretation
		\bar{X}	S.D		\bar{X}	S.D	
1	A loud noise disturbs the tranquility of the village	4.62	0.49	Veryhigh	1.9	0.74	Little
2	The amount of traffic and accidents increased	4.53	0.5	Veryhigh	2.03	0.77	Little
3	Amount of garbage, air pollution	4.64	0.48	Veryhigh	2.28	0.89	Little
4	There are not enough consumables	3.45	0.54	High	3.09	0.66	High
5	Development of basic infrastructure	4.38	0.88	Veryhigh	3.33	0.98	Medium
6	The richness of the tourism site (biodiversity)	4.55	0.57	Veryhigh	1.95	0.78	Little
Total		4.36	0.58	Veryhigh	2.43	0.8	Little

The average value and standard deviation of 4.64 ± 0.48 , this indicated that the amount of trash and air pollution that people perceived before the COVID-19 disease spread are at the highest level possible because as the number of tourists rises, so does the amount of trash produced, particularly trash related to tourist consumption, such as plastic bags, water bottles, food waste, etc. These factors help individuals recognize the value of their local environment and increase their desire to preserve it. When COVID-19 spread, people's average opinion levels and standard deviation were both low, equaling 2.28 and 0.89, which suggests that less trash and air pollution was produced. It is possible to say that the environment and its resources have recovered.

Prior to the COVID-19 disease's emergence, visiting visitors had a significant negative impact on the village's sense of tranquility which demonstrated of average and standard deviation of 4.62 ± 0.49 . The amount of traffic from visitors and the music coming from the entertainment shop contribute to the degree of noise that affects the villagers' residents. The average value and the standard deviation value are similar during the COVID-19 disease outbreak, indicating that the epidemic is causing noise disruption (1.90 ± 0.74). Due to fewer visitors, the tranquility of the community is disrupted to a lesser extent.

People's opinions on the abundance of Vang Nam Yen in the year prior to the COVID-19 disease's spread are at the maximum level, with an average value and standard deviation of 4.55 ± 0.57 . Meaning that there were a lot of tourists before the epidemic spread, but the abundance was reduced as a result of the management of the tourism source itself, such as no rules for playing in the water, no restrictions on tourists, no punishment or warning when tourists make mistakes, no signs to guide tourists, and Another cause of the noise is from the tourists themselves, who do not consider the abundance of tourist resources, such as throwing food waste into the water. Because there aren't any visitors to disrupt the tourism area during the COVID-19 outbreak, Vang Nam Lai has recovered and is more numerous, with an average value and standard deviation value of 1.95 ± 0.78 at a low level.

CONCLUSION

This research examined the socio-economic implications of the COVID-19 epidemic on the Vang Nam Yen natural tourism attraction and surveyed level public opinion on its effect before and during pandemic. The environment in the period before the epidemic's outbreak in the tourist area of Vang Nam Yen was most negatively impacted, with an average value and a standard deviation equal to (4.36 ± 0.58) at the highest level. The economy of the populace, which suffered greatly during the epidemic, came in second with the mean and standard deviation at the lower level is 3.52 ± 0.77 . In terms of social aspects, the mean value and standard deviation value are both 2.91 ± 0.95 , which puts them in the center of the scale.

The income before the pandemic was 14,939.76 USD; it fell to 1,047.29 USD during it, accounting for 92.49 percent; expenditures were 992.20 USD before the epidemic; they fell to 368.92 USD during it, accounting for 62.82 USD, or 62.82 percent. The degree of public opinion and each aspect's consequences are evaluated as follows: As a total, during the economic period before to the epidemic's spread, the average value and standard deviation are equal to 1.62 ± 0.61 , which is the lowest level; during the epidemic time, they are equal to 3.52 ± 0.77 ,

which is the greatest level; With a mean and standard deviation of 2.26 ± 0.97 , respectively, the societal effect prior to the emergence of the COVID-19 illness is categorized as being at a minor level. The mean and standard deviation values for the pandemic era are 2.91 ± 0.95 , suggesting a medium level.

REFERENCES

- [1] World Bank: *Covid-19 to Impact Lao PDR Growth, Debt in 2020: New World Bank Report (2020)*. The World Bank Lao PDR Country Office, East Asia and Pacific Region. Retrieved from <https://www.worldbank.org/en/country/lao/publication/covid-19-to-impact-lao-pdr-growth-debt-in-2020-new-world-bank-report>.
- [2] Asian Development Bank (ADB) BRIEFS, *The Economic Impact of the COVID-19 Outbreak on Developing Asia*. (2020, March 06). DOI: <http://dx.doi.org/10.22617/BRF200096>. Retrieved from <https://www.adb.org/sites/default/files/publication/571536/adb-brief-128-economic-impact-covid19-developing-asia.pdf>
- [3] World Health Organization: *Coronavirus disease 2019 (COVID-19): situation report, 51*. World Health Organization (2020, March 11). Retrieved from <https://apps.who.int/iris/handle/10665/331475>
- [4] UNWTO: *COVID-19 Related Travel Restrictions: A Global Review for Tourism*. Second Report as of 28 April 2020. Retrieved from <https://webunwto.s3.eu-west-1.amazonaws.com/s3fspublic/2020-04/TravelRestrictions-28April.pdf>
- [5] Ministry of Planning and Investment (MPI). *COVID-19 Risks and Vulnerabilities in Lao PDR*. Vientiane. UNICEF Lao PDR (2021, May). Retrieved from <https://www.unicef.org/laos/media/4951/file/COVID-19%20RISKS%20AND%20VULNERABILITIES%20IN%20LAO%20PDR.pdf>
- [6] USAID. (2021). *Final Report USAID/ Lao PDR COVID-19 Assessment*. (2021, August).

- Retrieved from
https://pdf.usaid.gov/pdf_docs/PA00XS7K.pdf
- [7] Woo PC, Lau SK, Lam CS, Lau CC, Tsang AK, Lau JH, et al. (2012). Discovery of seven novel mammalian and avian coronaviruses in the genus delta coronavirus supports bat coronaviruses as the gene source of alpha coronavirus and beta coronavirus and avian coronaviruses as the gene source of gamma coronavirus and delta coronavirus. *J Virol* 86(7):3995–4008.
<https://doi.org/10.1128/JVI.06540-11> PMID: 222782374.
- [8] Su S, Wong G, Shi W, Liu J, Lai ACK, Zhou J, et al. (2016). Epidemiology, genetic recombination, and pathogenesis of coronaviruses. *Trends Microbiol.* 2016; 24(6):490–502.
<https://doi.org/10.1016/j.tim.2016.03.003> PMID: 27012512
- [9] Karakose, T. (2021). The impact of the COVID-19 epidemic on higher education: Opportunities and implications for policy and practice. *Educational Process: International Journal*, 10(1), 7-12.
<https://doi.org/10.22521/edupij.2021.101.1>
- [10] World Health Organization. (2020). *Naming the coronavirus disease (COVID-19) and the virus that causes it.* (2020, February 11). Retrieved from <https://bit.ly/31krd75>
- [11] Zhou P, Yang XL, Wang XG, Hu B, Zhang L, Zhang W, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature.* 2020; 579(7798):270–273.
<https://doi.org/10.1038/s41586-020-2012-7>.
 PMID: 32015507
- [12] Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al. A novel coronavirus from patients with pneumonia in China, 2019. *N Engl J Med.* 2020; 382(8):727–733.
<https://doi.org/10.1056/NEJMoa2001017>
 PMID: 31978945
- [13] Wu Z, McGoogan JM. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: Summary of a report of 72 314 cases from the Chinese Center for Disease Control and Prevention. *JAMA.* 2020; 323(13):1239-42.
 [DOI:10.1001/jama.2020.2648]
- [14] Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet (British Edition)*, 395(10227), 912–920.
[https://doi.org/10.1016/s0140-6736\(20\)30460](https://doi.org/10.1016/s0140-6736(20)30460)
- [15] Holmes, E. A., O'Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., Ballard, C., Christensen, H., Silver, R.C., Everall, I., Ford, T., John, A., Kabir, T., King, K., Madan, I., Michie, S., Przybylski, A. K., Shafran, R., Sweeney, A., Bullmore, E. (2020). Multi-disciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *The Lancet Psychiatry*, 7(6), 547–560.
- [16] Sohrabi C, Alsafi Z, O'Neill N, Khan M, Kerwan A, Al-Jabir A, et al. World Health Organization declares global emergency: A review of the 2019 novel Coronavirus (COVID-19). *International Journal of Surgery.* 2020; 76:71-6. DOI:10.1016/j.ijssu.2020.02.034.
- [17] Worldometer. COVID-19 coronavirus pandemic [Internet]. 2020 (2020, June 18). Available from: <https://www.worldometers.info/coronavirus/>.
- [18] Khafaie MA, Rahim F. 2020. Cross-country comparison of case fatality rates of COVID-19/SARS-COV-2. *Osong Public Health and Research Perspectives.* 2020; 11(2):74-80. [DOI: 10.24171/j.phrp.2020.11.2.03]
- [19] WHO. (2020b). Impact of COVID-19 on people's livelihoods, their health, and our food systems. Joint statement by ILO, FAO, and IFAD. <https://www.who.int/news/item/13-10-2020-impact-of-covid-19-on-people's-livelihoods-their-health-and-our-food-systems>[Access January 6, 2023]
- [20] Baker, S. R., Farrokhnia, R. A., Meyer, S., Pagel, M., & Yannelis, C. (2020). *How Does Household Spending Respond to an Epidemic? Consumption during the 2020 COVID-19 Pandemic.* NBER Working Paper No. 26949. <https://doi.org/10.3386/w26949>

- [21] Andersen, A. L., Hansen, E. T., Johannesen, N., & Sheridan, A. (2020). *Consumer Responses to the COVID-19 Crisis: Evidence from Bank Account Transaction Data*. CEPR Discussion Paper No. DP14809. <https://dx.doi.org/10.2139/ssrn.3609814>
- [22] Chen, H., Qian, W., & Wen, Q. (2020). *The Impact of the COVID-19 Pandemic on Consumption: Learning from High Frequency Transaction Data*. SSRN Working Paper No. 3568574. <https://dx.doi.org/10.2139/ssrn.3568574>
- [23] Forsythe, E., Kahn, L. B., Lange, F., & Wiczer, D. G. (2020). *Labor Demand in the time of COVID-19: Evidence from vacancy postings and UI claims*. NBER Working Paper No. 27061. <https://doi.org/10.3386/w27061>
- [24] Kim, S., Koh, K., & Zhang, X. (2020). *Short-Term Impact of COVID-19 on Consumption Spending and Labor Market Outcomes: Evidence from Singapore*. IZA Discussion Paper No. 13354. <http://ftp.iza.org/dp13354.pdf>
- [25] S H T, Kumudumali. (2020). Impact of COVID-19 on Tourism Industry: A Review. Department of Operations Management, Faculty of Management, University of Peradeniya. Online at <https://mpr.aub.uni-muenchen.de/102834/>. MPRA Paper No. 102834, posted 16 Sep 2020 09:48 UTC
- [26] Shretta, R. (2020). *The economic impact of COVID-19*. Retrieved from Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford website: <https://www.tropicalmedicine.ox.ac.uk/news/the-economic-impact-of-COVID-19>
- [27] Lin Li, Naradda Gamage, S.K., Haq, I.U. & Nedelea, A.M. (2017). Does social capital influence resident's attitudes towards tourism development in Sri Lanka? *Journal of Tourism-studies and research in tourism*, 22, pp. 8-18.
- [28] Ozili, P., & Arun, T. (2020). Spillover of COVID-19: Impact on the Global Economy. SSRN Electronic Journal. 10.2139/ssrn.3562570.
- [29] Lóke, Z., Kovács, E., & Bacsi, Z. (2018). Assessment of Service Quality and Consumer Satisfaction in A Hungarian Spa. *Deturope-The Cent. Eur. J. Reg. Dev. Tour.*, 10(2): pp. 124–146.
- [30] Haq, I. U., Alotaish, M.S.M., Naradda Gamage, S.K., and Otamurodov, S., (2014). Revisiting the Romer's hypothesis: Time series evidence from the small open economy, *Pakistan Journal of Applied Economics*, 24(1), pp.1-15.
- [31] Gamage, S.K.N., Kuruppuge, R.H., & Haq, I.U. (2017). Energy consumption, tourism development, and environmental degradation in Sri Lanka, *Energy Sources, Part B: Economics, Planning, and Policy*, 12(10), pp. 910-916.
- [32] World Bank. (2017). Annual Report (English). Washington, D.C.: World Bank Group. (2017, June 10). Retrieved from <http://documents.worldbank.org/curated/en/143021506909711004/World-Bank-Annual-Report-2017>
- [33] World Travel and Tourism Council (WTTC). (2017). *Travel and Tourism Economic Impact*. World Travel and Tourism Council, London. <https://www.wttc.org/-/media/files/reports/economic-impact-research/regions-2017.pdf>
- [34] Zakour, M. J., & Swager, C. M. (2018). Vulnerability-plus theory: The integration of community disaster vulnerability and resiliency theories. In M. J. Zakour, N. B. Mock, & P. Kadetz (Eds.), *Creating Katrina, Rebuilding Resilience* (pp. 45– 78). Oxford: Butterworth-Heinemann.
- [35] Fattah, M.A., Morshed, S.R., Hoque, M.M., Rabbi,M.F. and Dola,I.A. (2022), "Impacts of COVID-19 outbreaks on the lower-income groups and attainments of SDGs: a study of the fast-growing commercial capitalcity,Chittagong, Bangladesh", *Frontiers in Engineering and Built Environment*, Vol. 2 No. 2, pp. 107-120. <https://doi.org/10.1108/FEBE-12-2021-0058>
- [36] Krejcie, R.V. & Morgan, D.W. 1970. Determining Sample Size for Research Activities. *Educational and Psychological Measurement*.
- [37] Likert, R.1932. A technique for measurement of attitudes. *Archives of Psychology*, 140 5-55.

- [38] Yuthana Kadem, Chok Trasu, Anan Vong Benjaran, (2020). Economic and social impact From the Covid-19 situation of the people in the municipality, Yala district, Yala province
- [39] Suphatra Rungrat, Piphat Ratkitphakan and Anan Pad Tanuphong.(2020). Covid-19 and its impact on Thai tourism, Analysis, Office of the Ministry of Tourism and Sports of Thailand, No. 4, Latsangon Road, Wat Somnath Province, Bangkok, Thailand. p. 30.