

## ANALYSIS OF EXTREME GASTRONOMY TOURISM AS A POTENTIAL PANDEMIC IN TOMOHON CITY, NORTH SULAWESI, INDONESIA

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### ABSTRACT

**Abstract:** Extreme gastronomy tourism can usually be defined in many ways, be it because of the cooking methods or the interesting ingredients. Some countries like China and Thailand have unique gastronomy, and so does the city of Tomohon in Indonesia. In fact, it has turned into one of the world's threads since the extreme ingredients were part of the pandemic' causes. Not to mention, most of them are taken from the wildlife where we can not predict whether they have been vaccinated or not yet. This trouble will eventually cause the countries all over the world would start another lockdown which will also affect the tourism due to lack of mobility, on the other hand tourism has turned into one of the factors on why the world's increased recently. In short, it can be concluded that the impact of pandemic can stop the tourism activity and affecting on a country's economy too. This journal is reviewing journals literature where were taken from Google Scholar, Nature and Pubmed. Pandemic mostly happened due to the dissemination of virus in many ways which are direct contact or indirect contact. In fact, most of them are caused by food and spread through the physical touch and fluids, in addition the longer the chain of the virus will cause more toxicity to the other host. And the worst the diseases, the later will it resolves and causing an economic instability. It will eventually impact the economy flow and stability.

**Keywords:** Tourism; Extreme Gastronomy; Pandemic

### Introduction

Extreme gastronomy market basically can be defined as the market that sells unusual meat by the locals such as insect, snake, mouse, bat, frog, cat and dog (Woolf, Zhu, Emory, Zhao, & Liu, 2019). Aside from having an extreme way to be eaten, this well-known unusual cuisine is also being consumed due to the nutrient richness. In short, these meats which are sold in the extreme market are classified as extreme cuisine. These meats are consumed by humans due to the nutrients given in it, cats can cure the asthma disease and snakes can keep human's skin nutritious and gentle (Adipati, Pitana, & Bhaskara, 2022)

Consuming extreme cuisine has widely spread all over the world, there are some famous countries such as China, Korea, Japan, Thailand and Indonesia as part of the culture (Hopkinks, 2019; (Valencia, 2020); (Yudhana, Praja, & Supriyanto, 2019). In Indonesia, there are a lot of cities which sell extreme cuisine, but Tomohon has turned into the most well-known city for extreme cuisine, either raw or cooked. (Adipati et al., 2022) ; (Gao et al., 2022).



Figure 1 | The Tomohon Extreme Market (RNR Travel, 2012).



Figure 2 | The Tomohon Market (Mirror, 2020).

Most of the diseases in the world are caused by the zoonotic aspect and usually animal turns into one of the agents with various way to deliver it as being bitten or consuming them (Rahman et al., 2020); (Bauer, Zhang, & Linhardt, 2021), Warm-blooded birds and mammals usually become one of the most easily infected hosts (Angel et al., 2020) Saldarriaga Cartagena, & Sullivan Jr, 2020). Either pandemic or endemic are not only considered as infectious but also dangerous due to the spread speed, how they spread are usually through fluid, physical contact and consuming the hosts or surfaces (Morens & Fauci, 2020; (Valencia, 2020)

Tomohon is well-known as a city which sells extreme cuisine with various unusual meats such as cats, dogs, rats, wild boards, snakes, pigs, bats etc (Tamboto, Tambingon, Lengkong, & Rotty, 2021). As mentioned before, some foods basically can be an agent for zoonotic parasites to spread and there were cases as coronavirus was spread initially from Seafood Market (Valencia, 2020), avian influenza through the contact and consumption of the poultries (Phan et al., 2020)

Due to the breakouts, there are lots of preventions that are done to vaccinate the agent or infected humans (Carpenter et al., 2022). But that does not mean that all of the animals including the wild animals will get vaccinated, it is said that most of the supply on Tomohon market is basically being taken from the wildlife which we cannot reassure if the species were all being vaccinated which would elevate a potential risk to human health and might turn into an endemic (Gao et al., 2022).

### Research Method

This research conducted a closer descriptive qualitative through the literature review of the extreme gastronomy tourism in Tomohon as a potential pandemic in the future. This journal reviewed the extreme gastronomy tourism as a potential pandemic in Tomohon City, North Sulawesi, Indonesia. The design of an alternative solution-related study was a literature review that is sourced from textbooks, neither national nor international journal articles, and statistics data that are relevant to the problem and purpose of the research (Cresswell, 2014). The data is collected by looking at the related popular scientific articles with the related keywords which are extreme gastronomy tourism, potential pandemic, and Tomohon City through search engine as Google Scholar, Nature, and PMC

### Result And Discussion

#### Extreme Gastronomy Tourism

As mentioned in theoretical framework, extreme gastronomy tourism mentioned as an activity which has a main goal to serve tourists with an assimilation of the localization and ornamental culinary and let the participants to enjoy an impressive impression and excitement. In conclusion, an extreme gastronomy is not only explaining about the seldom way of process of cooking but also about the ingredients of a cuisine.

In Tomohon city, having wildlife as main dishes are very casual, even it turns into one of offerings during the Minahasan's thanksgiving tradition. The animals that mentioned are snakes, bats, wild boar, dogs and rats, but they also serve the normal meats such as chicken, cow, pigs and etc (Sondakh & Yoesoef, 2022)

It is mentioned above that extreme gastronomy tourism has the factor of cultural and material (De Jong et al., 2018), the extreme cuisines in Tomohon has it all. It has turned into one of the cultures to have and consume the unvaccinated wildlife, even being counted as one of the offerings. The offerings are given to *Opo Empung Wailan Wangko* or Almighty God after the blessings of abundant harvest in Tomohon (Sondakh & Yoesoef, 2022)

#### Pandemic

The number of deaths which caused by pandemic is unpredictable, there is no specific number that can be predicted by the experts. The evidence can be seen through the COVID-19 cases which approximately killed 18 million excess deaths which recorded starting from Jan 1, 2020 to Dec 27, (Wang et al., 2022). Most of the cases are caused by

some specific organisms which is leading to the infection from wildlife to people (Morens & Fauci, 2020).

In this one last century, pandemic which happened has the same causes which are the rooting of flu virus. Starting from the Spanish flu pandemic that happened in 1900s until the recent pandemic which is caused by 2020. The pathogen moves from one organism to another is through the people movement, but lately it has greatly increase through the human-wild animal contact in places such as market which means Tomohon city's extreme gastronomy can be part of the source of pathogens' distribution (Morens & Fauci, 2020).

The COVID-19 pandemic was originally caused by the seafood in Huanan Seafood Market (Valencia, 2020), the mobilities during the first outbreak was still normal until the diseases spread slowly to other countries. The virus mutated from the type A until omicrons where the main role was from the animals. Not to mention, extreme gastronomy in Tomohon sells typical of unusual cuisine such as cats, dogs, bats, forest rats, wild boars, cattle pigs, snakes, etc (Tamboto et al., 2021) which in some cases had cause diseases transmission through the direct contact with the animal.

### Zoonotic

As mentioned above, zoonotic has turned into one of the deadly diseases causes. It can be seen through the latest pandemic that happened at the 2020 which in COVID-19 coronavirus pandemic. The reported mortality due to the COVID-19 case was totalled 5.94 million worldwide, but the mortality was estimated death 18.2 million. The highest excess of mortality estimated was in India (4.07 million), the USA (1.13 million), Russia (1.07 million), Mexico (798.000 million), Brazil (792.000 million), Indonesia (736.000) and Pakistan (664.000) (Wang et al., 2022).

Several famous diseases were caused by the zoonotic causes such as AIDS, Avian flu, Covid/MERS/SARS, Hepatitis E, Rabies, Plague, Malaria and Toxoplasmosis. The causes of those diseases can be seen through the table 1.

**Table 1. Common Zoonotic Diseases**

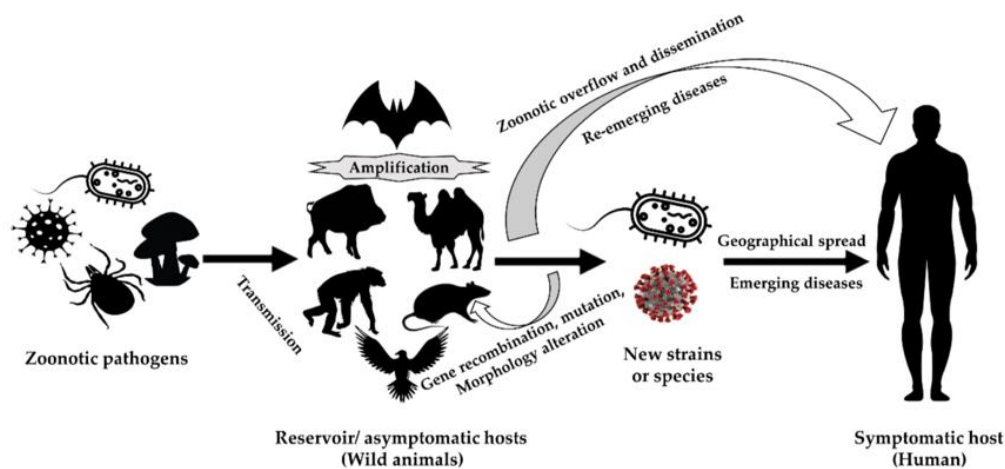
Diseases	Pathogen	Animal	Insect Vector
AIDS	HIV <i>Lentivirus</i>	Chimps	-
Avian flu	<i>Influenza A H5N1</i>	Waterfowl	-
Covid/MERS/SARS	<i>Coronavirus</i>	Bats, civets/camels	-
Hepatitis E	<i>Orthohepevirus HEV</i>	Rats	-
Rabies	<i>Lyssavirus</i>	Bats	Flea
Plague	<i>Yersenia Pestis</i>	Rats and rodents	-
Toxoplasmosis	<i>Toxoplasma gondii</i>	Cats, dogs, Goats, Sheep	-

(Wang et al., 2022); (Angel et al., 2020) , Vanagas, Ruiz, Cristaldi, Saldarriaga Cartagena & Sullivan, 2020)

Hereby, the author can conclude that AIDS, Avian flu, Covid/MERS/SARS/, Hepatitis E and Rabies are caused by the virus, Plague is caused by bacteria and *Toxoplasmosis* is caused by protozoa. And through the table above, it can be seen that most of the hosts of the diseases are wild animals which are sold in Tomohon city and it does not preclude the possibility of North Sulawesi as a pioneer of the pandemic outbreak.

### Food Chain

As explained in theoretical framework, the higher food chain a food has will contain the higher toxicity which is shown in figure 3. The reason why it happens can be seen through the figure 5.



**Figure 5** | Zoonotic Diseases: Etiology, Impact and Control.  
(Rahman et al., 2020)

The flow how it gets into the human's body is very complex. Initially, the pathogens are basically living inside the producer level one, then being consumed by the consumers and predators. The pathogens carry by the producer might not be very dangerous in some producer body system, since normally the consumers are from kingdom neither plantae nor fungi which has different cells from the consumers which generally are from the kingdom animalia. The basic cells between two of them are different and its effects on the way how the body will terminate the pathogens, even for each of the kingdom will have the different cells order, organ and body protection system.

It becomes most deadly disease when the pathogen has reached human. Initially, the consumer level one eats or has a direct contact to the zoonotic pathogens, it will start to adapt and adjust with the host's body. The transmission happened to the consumer level one; it might not directly affect the host. However, it depends on how the pathogens multiple itself and affect neither the host's cells multiplication system nor misleads the hosts to attack the pathogens for protects the body. Then, when it starts to adjust with the current host, there will be a combination between the pathogen cells and host's cell which cause a transmission indirectly.

### Tourism's Economic Factor

Tourism has a crucial impact onto our world's economic factor, not to mentioned it turned into world's biggest bound income. The pandemic has turned into biggest fear for the world since it has turned the world into a whole messed especially the tourism sector. Based The World Tourism Organization (UNWTO) in 2022, we lost approximately 1.58 trillion US Dollars across 132 countries in the world (Sun, Li, Lenzen, Malik, & Pomponi, 2022)

The contribution of tourism in Indonesia's economic development can be seen through the Gross Domestic Products. In 2015 to 2019, the changes of GDP are not too striking but steadily showing a decent improvement. Based on Statistic Central Centre (Badan Pusat Statistik), tourism contributed 4.25% of GDP in 2014 and 5.50% of GDP in 2019. And the most significant change can be seen in 2018 to 2019 where the increasing value of GDP raised to 1% of the total GDP annually with total number of tourists (Haryana, 2020)

**Table 2.** Statistics Central Centre, 2019

<b>Tourism GDRP's Contribution in 34 Provinces in Indonesia (%)</b>					
<b>Provinces</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
ACEH	1.06	1.14	1.19	1.27	1.32
SUMATERA UTARA	2.20	2.24	2.27	2.31	2.37
SUMARETA BARAT	1.00	1.01	1.05	1.09	1.12
RIAU	0.44	0.45	0.45	0.46	0.47
JAMBI	1.02	0.98	1.00	1.03	1.06
SUMATERA SELATAN	1.13	1.19	1.25	1.28	N/A
BENGKULU	1.45	1.50	1.56	1.63	1.67
LAMPUNG	1.27	1.32	1.34	1.38	1.45
KEP. BANGKA BELITUNG	2.27	2.25	2.27	2.27	2.31
KEPULAUAN RIAU	1.94	1.94	1.94	2.13	2.26
DKI JAKARTA	5.01	4.99	4.99	4.98	4.94
JAWA BARAT	2.40	2.47	2.55	2.63	2.69
JAWA TENGAH	3.07	3.11	3.14	3.17	3.26
DI YOGYAKARTA	9.32	9.39	9.44	9.52	9.57
JAWA TIMUR	4.97	5.08	5.22	5.34	5.45
BANTEN	2.29	2.31	2.36	2.42	2.46
BALI	19.55	19.60	19.65	20.30	20.27
NUSA TENGGARA BARAT	1.81	1.57	1.64	1.75	1.75
NUSA TENGGARA TIMUR	0.59	0.60	0.65	0.70	0.75
KALIMANTAN BARAT	2.29	2.31	2.29	2.26	2.30
KALIMANTAN TENGAH	1.65	1.67	1.70	1.68	1.70
KALIMANTAN SELATAN	1.80	1.85	1.89	1.92	1.95
KALIMANTAN TIMUR	0.68	0.74	0.79	0.84	0.89
KALIMANTAN UTARA	1.20	1.24	1.29	1.37	1.45
SULAWESI UTARA	2.14	2.19	2.32	2.33	2.32
SULAWESI TENGAH	0.55	0.53	0.51	0.51	0.51

<b>Tourism GDRP's Contribution in 34 Provinces in Indonesia (%)</b>					
<b>Provinces</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
SULAWESI SELATAN	1.36	1.34	1.36	1.42	1.49
SULAWESI TENGGARA	0.57	0.58	0.58	0.58	0.58
GORONTALO	2.15	2.19	2.23	2.32	2.34
SULAWESI BARAT	0.24	0.24	0.25	0.24	0.24
MALUKU	1.80	1.83	1.73	1.71	1.69
MALUKU UTARA	0.44	0.43	0.46	0.47	0.46
PAPUA BARAT	0.49	0.51	0.53	0.54	0.55
PAPUA	0.68	0.68	0.66	0.67	0.66
<b>INDONESIA</b>	<b>5.81</b>	<b>5.83</b>	<b>5.72</b>	<b>5.79</b>	<b>5.80</b>

(Haryana, 2020)

The contribution of North Sulawesi in Indonesia's GDP number was raising from the rank 9<sup>th</sup> in 2014 with 2,14% to the 8<sup>th</sup> in 2018 with 2,32% of contribution as shown in table 2 (BPS, 2019). This province also can be considered as the developing tourism area and might grow more than the number it was holding onto.

Retrieved from the latest pandemic, the whole world should shut their travelling activity down, even mobility is limited. There was a very significant decline in economic growth which caused massive losses in many sectors, especially tourism. Each of countries in the world including Indonesia shut each province and caused some tourism sector such as hotels and aviation had huge losses. If Tomohon city had turned into the pioneer of the pandemic, the mobilities there would have limited and the city would have been locked down which cause limitation of economic activities.

### Conclusion

The extreme gastronomy tourism in Tomohon city is basically typical of tourism which provide a unique cuisine such as cats, dogs, bats, forest rats, wild boars, cattle pigs, snakes, etc. The types of food usually traded in such extreme markets are divided into two categories, un-cooked food and cooked food. The cuisines which are sold there might be the media for the pathogen's dissemination through neither the consumption nor the direct contact.

Economic of a country and region is very important, but it is better if there is a simultaneous change. In order to prove the economic growth, gross domestic product (GDP) can be an indicator. Through tourism, the world's gross domestic product has increase more than 10% which means the world's economic grow slowly but enhance. For instance, it might be concluded that the tourism activity has gradually increase the neither world nor Indonesia. In Indonesia especially North Sulawesi's GDP has grown from 2.14% in 2014 to 2.32% in 2018, the changes might not be significant but the healthy economic will cautiously grow and sustain in a long term.

On the other hand, in last one century, approximately 60% of the diseases that occurs are caused by the zoonotic causes. It started from epidemic and turned into pandemic by many pathways of transmission. During the Spanish flu, the disease outbreak was caused by the travelling activity and many other ways. There is even a disease can only spread through the sexual intercourse or human's bleeding area which is Human Immunodeficiency Virus and Acquired Immunodeficiency Syndrome. Lately, the spread of virus came through the direct contact of between neither human to the wildlife nor human to human.

The pandemic has caused more than 150 countries locked down which means the travelling activity should be knocked down in order to reduce the dissemination of the disease. In short, if a country was being locked down, then the travelling activity should be stopped, which lead to the economic growth since there are no tourists which come to the following country or region. Not to mention, the last pandemic caused more than 18 million deaths even though World Health Organization (WHO) along with countries all over the world had already worked together to prevent the citizens by social distancing, washing hands, wearing mask and sanitizing procedures. But unscrupulous individuals did not follow the regulation and caused the mutation of the virus, which does not exclude the possibility of Tomohon city's extreme gastronomy might cause pandemic and had the virus mutated.

In brief, it can be concluded that if there were going to be another pandemic and lock down, it will sequentially affect the tourism travelling mechanism and the economy of a region. Moreover, if a region depends on the tourism sector the most, the GDP of the following region will certainly be affected. In short, the economic will turn unhealthy due to the significant decline of economic growth

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