



Internship Assignment

1. Introduction

We have all been impacted by the current epidemic of COVID-19. In contrast, our experiences with the epidemic and its effects vary according to our individual and collective social standing and circumstances. While some people attempt to adjust to working online, home-schooling their children, and buying meals via Instacart, others are forced to be exposed to the virus in order to keep society running. This includes those who work in the healthcare industry. Our various social identities, as well as the social groupings to which we belong, influence our ability to function as productive members of society.

The emergence of the COVID-19 pandemic has had a significant effect on cities all around the globe, and it has highlighted important concerns regarding the future of urban growth. With more than half of the world's population living in official and informal urban settlements, the continuing crisis has proven the capacity of cities to deal with such problems in a sustainable manner. Because of the pandemic's multi-dimensional effect, for example, lockdown measures were instituted, schools, public places, and cultural institutions were shuttered, and unemployment increased. In addition, tourism and associated revenues were decimated, particularly in major cities like Paris.

In December and January of this year, the globe was alerted to a viral epidemic in China. It was described as a pneumonia-like disease that was unknown at the time. An "urgent notification" was issued by the Wuhan Municipal Health Commission on December 30, 2019, informing the

public that instances of pneumonia had been reported in the city's Huanan Seafood Wholesale Market, according to the notice.

The epidemic was reported to the World Health Organization (WHO) on December 31 by China. The seafood market has been chosen as the focal point of the event. The World Health Organization declared the outbreak to be a pandemic in March 2020, and the epidemic is still ongoing. As a result, several nations have implemented a full state of emergency. During the lockdown, all schools and workplaces were closed, and it was recommended that everyone remain at home if possible. Work was restricted to just the most necessary employees. In addition to the closure of public spaces, the selling of necessities was limited to certain times.

It is COVID-19 that is responsible for the high number of deaths. 198,778,175 confirmed cases of COVID 19 have been reported to the World Health Organization thus far in 2021, with 4,235,559 fatalities. There have been 31,726,507 verified COVID-19 cases in India, with 425,195 fatalities reported to the World Health Organization between January 3, 2020 and August 3, 2021. Kerala, India, has reported the first case of COVID-19 infection. An emergency department visit was made on January 27, 2020, by a 20-year-old girl who had been complaining of a dry cough and a painful throat for the previous day in Thrissur, Kerala. Neither a temperature nor rhinitis nor any shortness of breath had been reported before. As a result of the COVID-19 epidemic scenario in China, she revealed that she had returned to Kerala on January 23, 2020, from Wuhan city.

2. Need of the study

The Novel corona virus, also known as covid 19, has been identified as the source of a recent epidemic of respiratory disease. It is obvious that, physically and socially, this crisis will have a bearing on cities. The COVID-19 epidemic has already changed urban life considerably. The number of travellers has fallen to an unprecedentedly low level. Working from home is the new standard — for those who can afford it and who can even start with it. We wanted to know the influence of covid on individuals and cities from a city planner's viewpoint and analyse the effect on future implications. The pandemic seriously changed the way we work, learn,

shop, socialise and play. The objective of the research is to identify how, as an urban planner, things will improve. The need for conversation planners is emphasised by the development of the cities and their direct connection with the spread of diseases. Why are urban areas the main point of interest for virus outbreaks? Why are these viruses just targeting select cities? These are the issues we are trying to tackle. So, we are doing research to examine how the virus impacted India's urban regions, utilising an abundance of viral data, and we aim to analyse the virus at many levels throughout the city to understand how the virus affected the nation at an urban level and to draw significant lessons for post-covid.

3. Objective

This study aims to give an overview of COVID-19 research linked to cities by examining and analysing the literature and data provided by the government and other secondary sources, including academic journals. Additional goals include the identification and marking of containment zones from waves 1 and 2, the identification of areas of significant outbreaks, and the determination of the pattern of viral transmission.

4. Scope of the study

The scope of our research is restricted to a small selection of cities that have the highest number of covid cases.

5. Limitation

- There are no opportunities for primary data gathering.
- There is a limited quantity of data accessible.

6. Methodology

The study is divided into three stages

1. Data collection
2. analysis
3. Inferences

Source of data

The information used in this research was gathered only from secondary resources.

7. Reason for Site Selection

8. City Profile

The Municipal Corporation of Bhopal administers the city, which is located within the Bhopal Metropolitan Region. Bhopal is the capital of the Indian state of Madhya Pradesh.

According to Census India's provisional data, Bhopal's population was 1,798,218 in 2011; males numbered 936,168, while females were 862,050. Although Bhopal has a population of 1,798,218 people, its urban/metropolitan population is 1,886,100 people, with 981,860 men and 904,240 women.

Due to the fact that it is one of India's major industrial centres, the population density is quite high here. Bhopal has a population density of around 663 inhabitants per square kilometre.

The majority of the world's population resides in cities, which also serve as hubs for economic development and innovation. However, cities are prone to a range of stressors, including natural and man-made disasters, because of their high population density and activity. We've chosen locations throughout India to study in order to have a better understanding of this, and Bhopal is one of them.

9. Bhopal - wave 1 and wave 2 comparison

The first phase of the lockdown in Bhopal lasted from 17-5-2020 to 4-8-2020, while the second part of the lockdown was from 12-4-2021 to 26-6-2021.

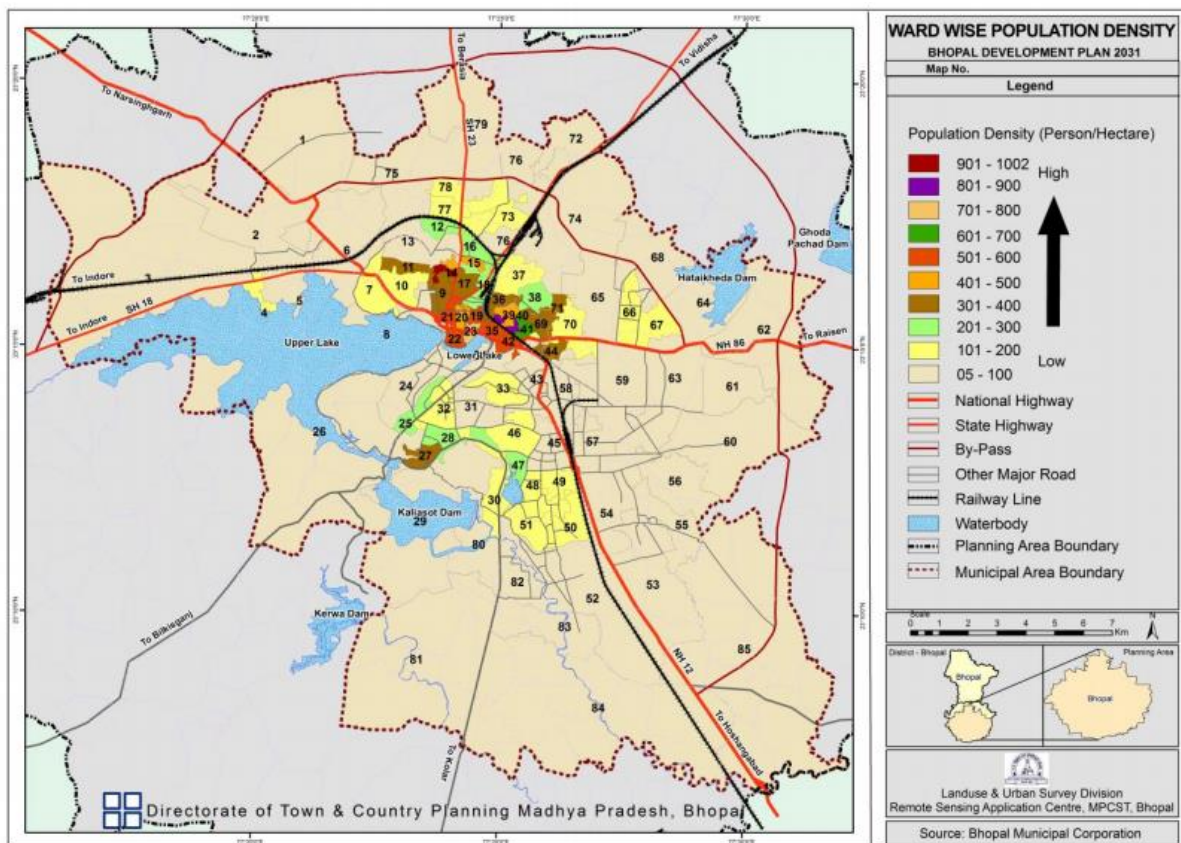


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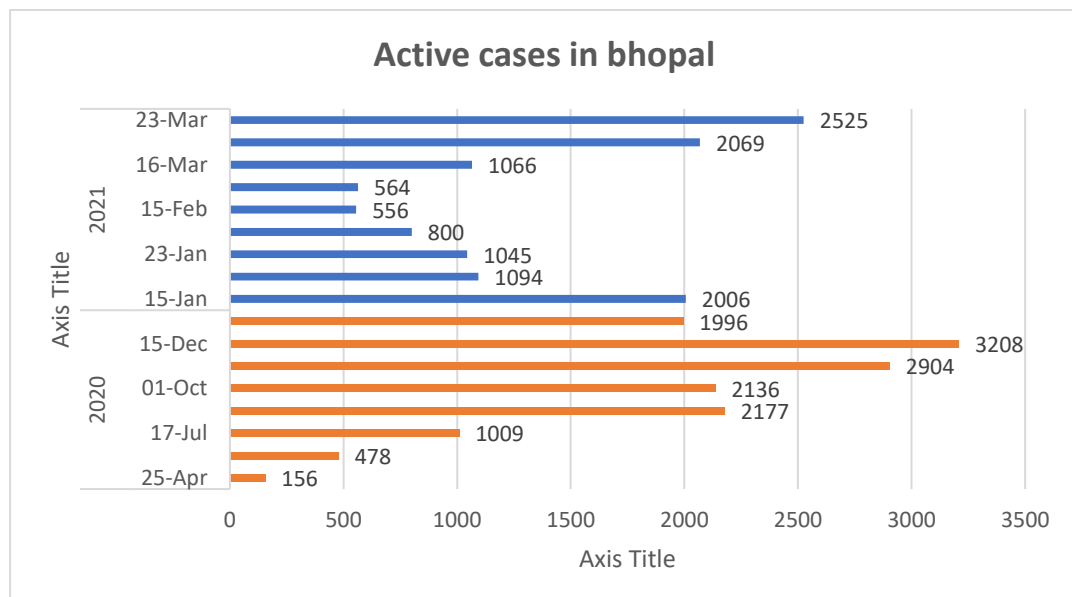


Figure Error! No text of specified style in document.-2 positive case trend by date

From the analysis from fig 1 we got to know that It took 15 days for cases to double during the height of the epidemic in July 2020. On March 16, 2021, the number of active cases in the state capital reached 1000; it has taken half as long as it did last year for the number of active cases to double. Since March 16, the number of active cases has increased to 2525. Last year, it took 19 weeks from the middle of July until the end of December, when the number of active cases reached 3200 cases.

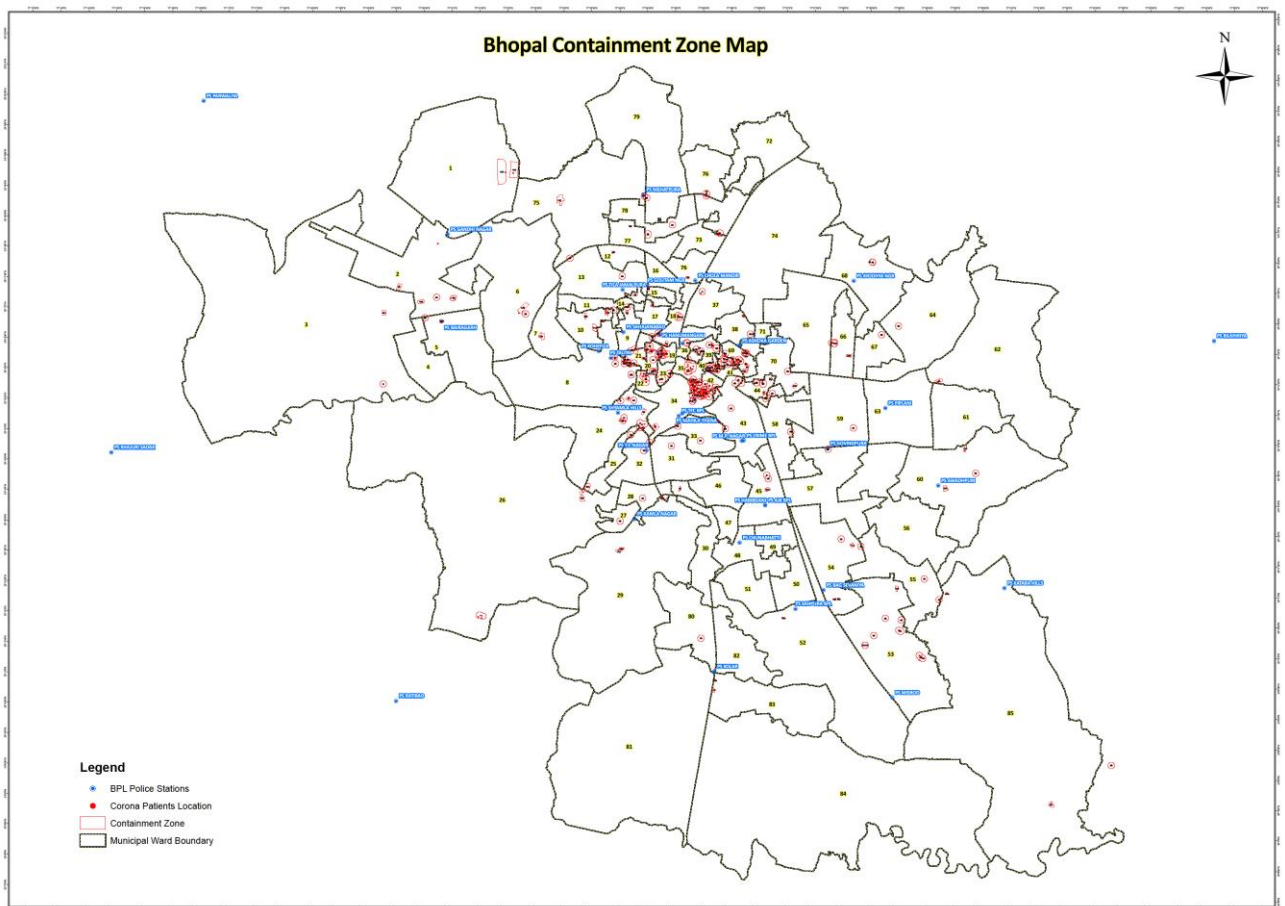


Figure2: Bhopal containment zone map

Because of this containment map, we were able to determine that Bhopal city (the centre portion of Bhopal) had the greatest number of instances of covid. Furthermore, we can see from the image above that some areas of Bhopal city have the greatest population density. Following that, Govindpura, Kolar, and

Berasia had the highest concentration of confinement zones.

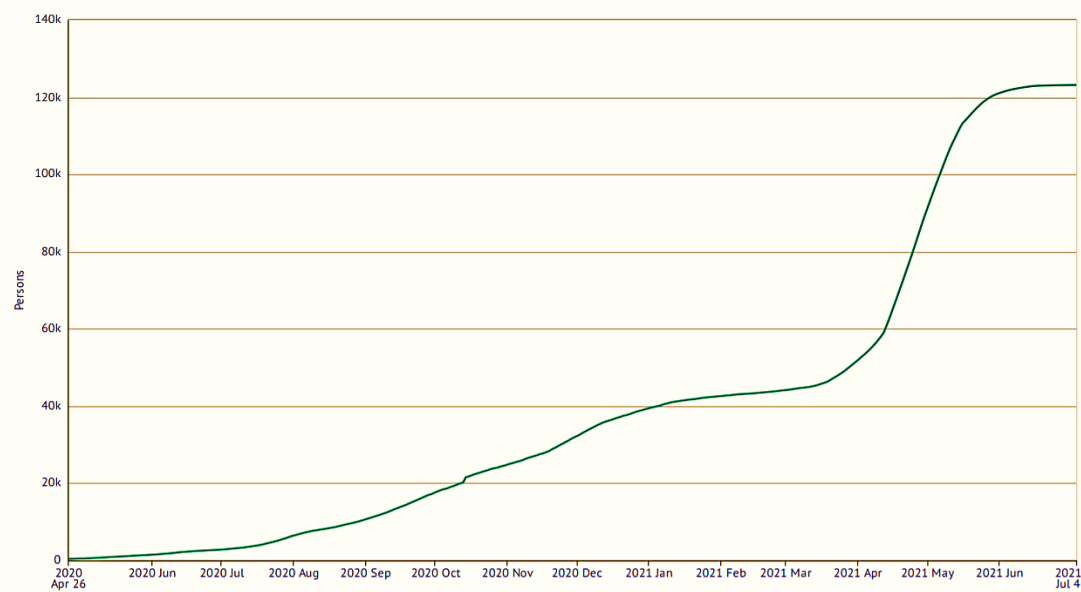


Figure.3 Bhopal covid 19 cases confirmed

As of July -2021, total confirmed case in Bhopal is **123,271**.in wave 1 total number of confirmed cases were around 35 k.

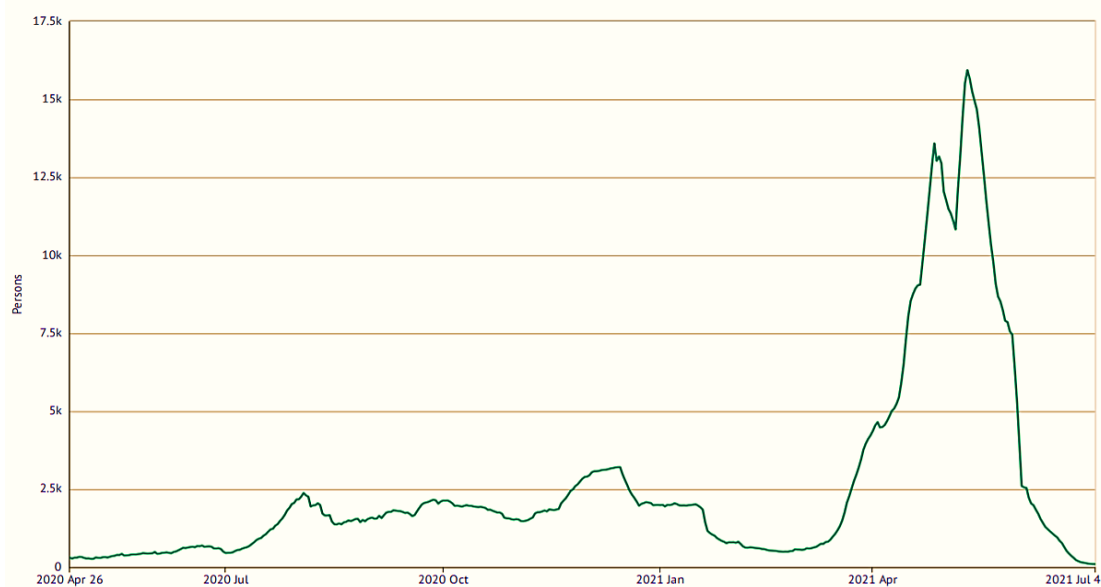
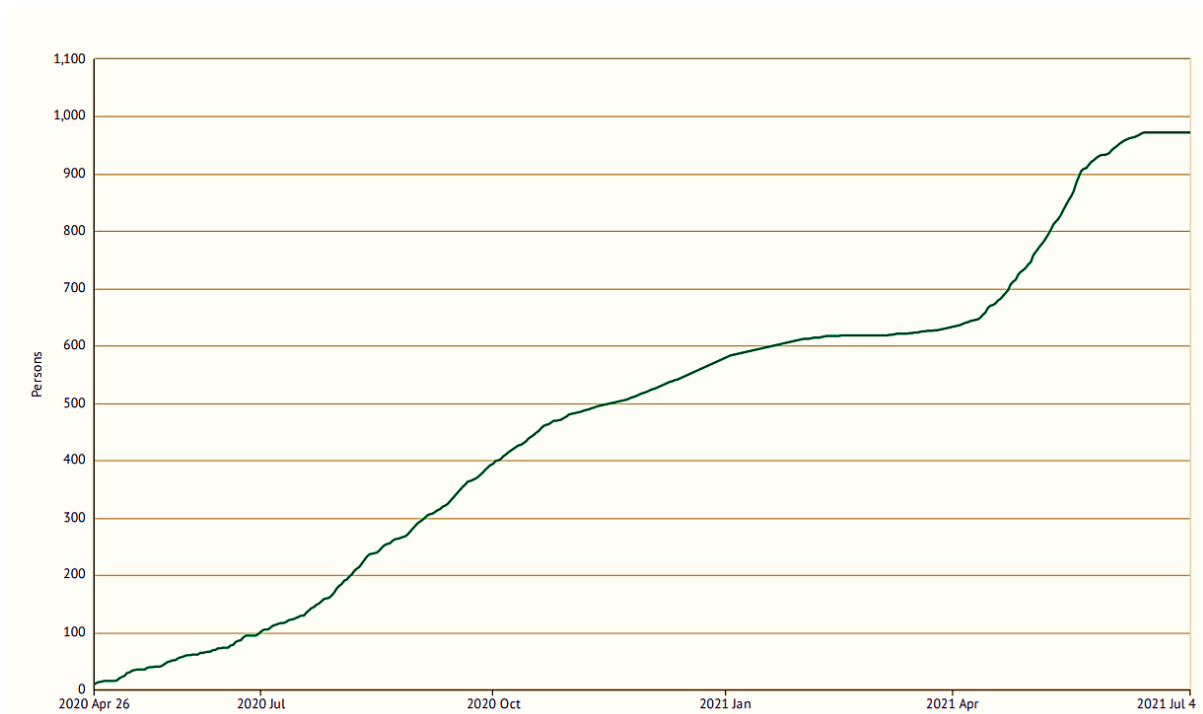


Figure.4. active cases in Bhopal

As of July -2021 total active cases in Bhopal is **178** . in this graph we can see the trend of covid outbreak in Bhopal so the 2nd wave of covid hits Bhopal harder between April to June.2nd wave of virus outbreak in Bhopal is much shorter and steeper increase and fall.



As of July 2021, the total number of people who died in Bhopal as a result of covid is 972 people. Survivors of the 1984 gas leak disaster have alleged that they were disproportionately affected by the coronavirus and that they accounted for 75 percent of the COVID-19 fatalities in Bhopal. As of June 2020, non-governmental organisations (NGOs) dealing with survivors of the Bhopal gas leak disaster in 1994 have conducted a study that indicates that 48 of the 60 patients who died due to coronavirus in the state capital between June 11 and June 18 were also gas victims.

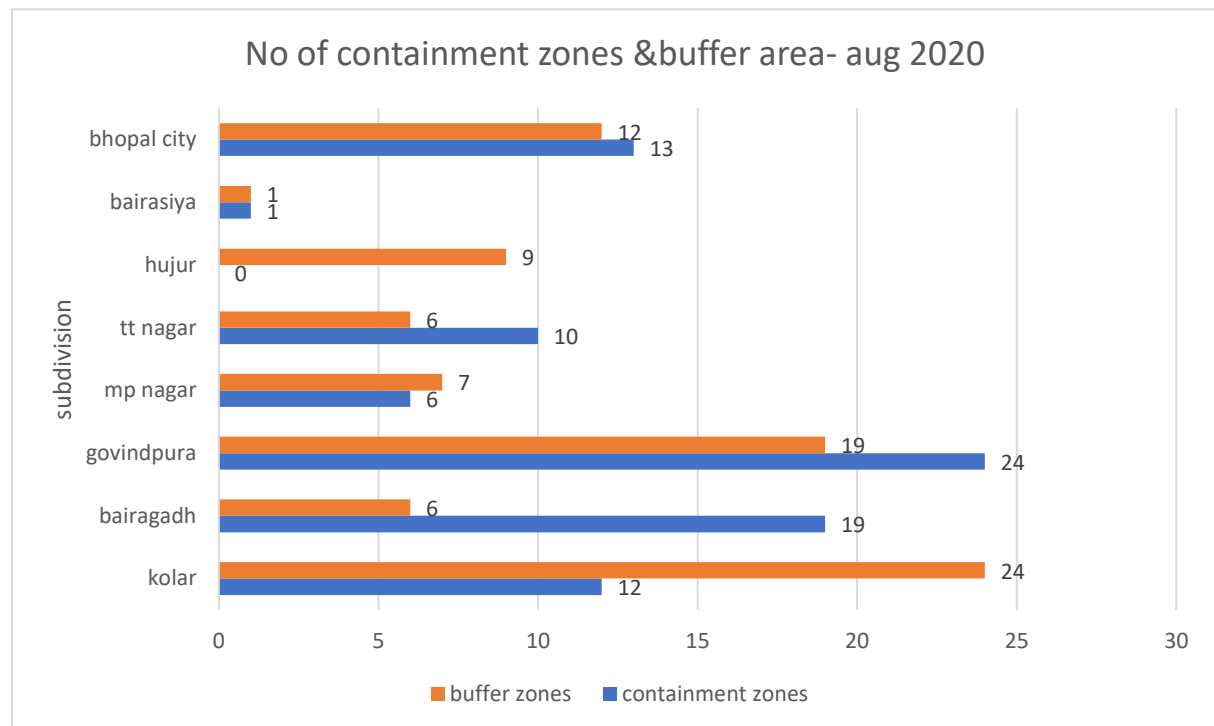
Among the 48 deaths were three children who were born to parents who had been exposed to the deadly gas leak. 35 years ago, a study of 60 fatalities revealed that of the COVID-19 deaths of individuals under the age of 60, 85 percent of those who had survived the gas disaster were among those who died as a result of the gas tragedy. COVID-19 is not just killing elderly gas victims; it is also killing a large number of younger survivors who have been exposed to the gas.

Among the gas leak disaster survivors who succumbed to coronavirus, 81 percent had comorbidities (pre-existing health problems) as a consequence of their decades-long exposure to the deadly gas, according to the study.

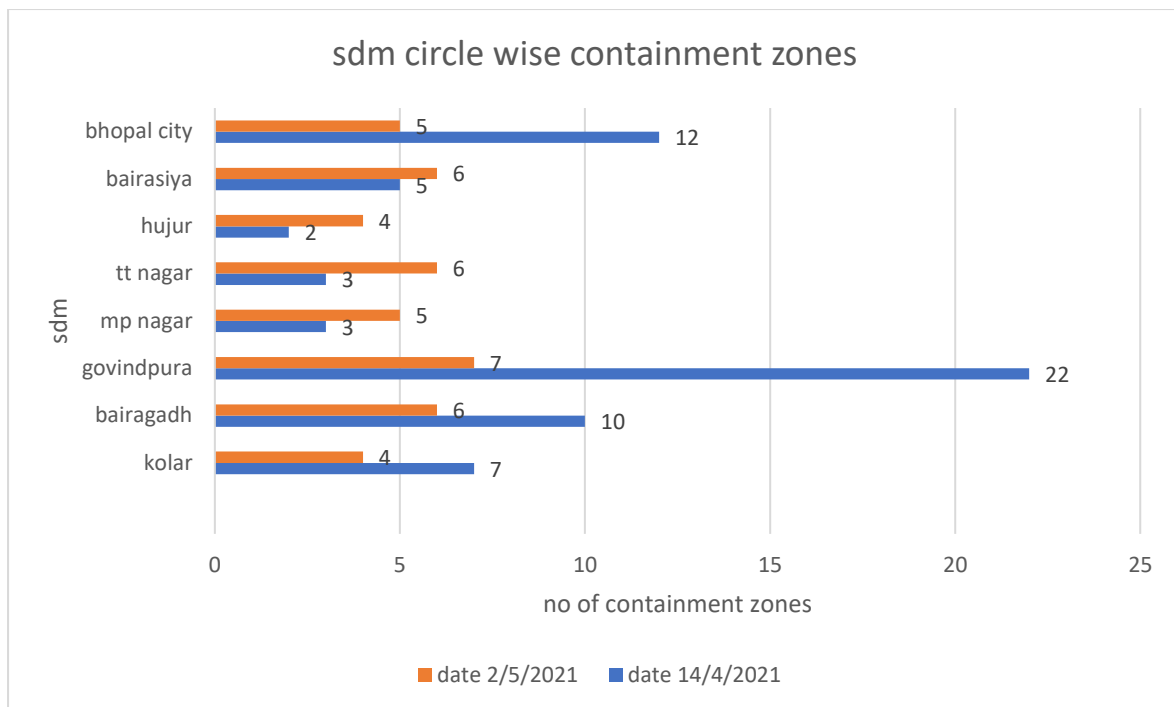
Consequently, we have learned that health is a significant role in the death of the Covid 19 victims, and that Bhopal is one of India's most important

industrial centres. An environmental protection and coordinating organisation (epco) in Bhopal produced a study stating that the standard particulate matter (spm) level has risen 10 times the permissible Indian limit of 100g/cum for residential areas.

10.Subdivision wise containment zone status



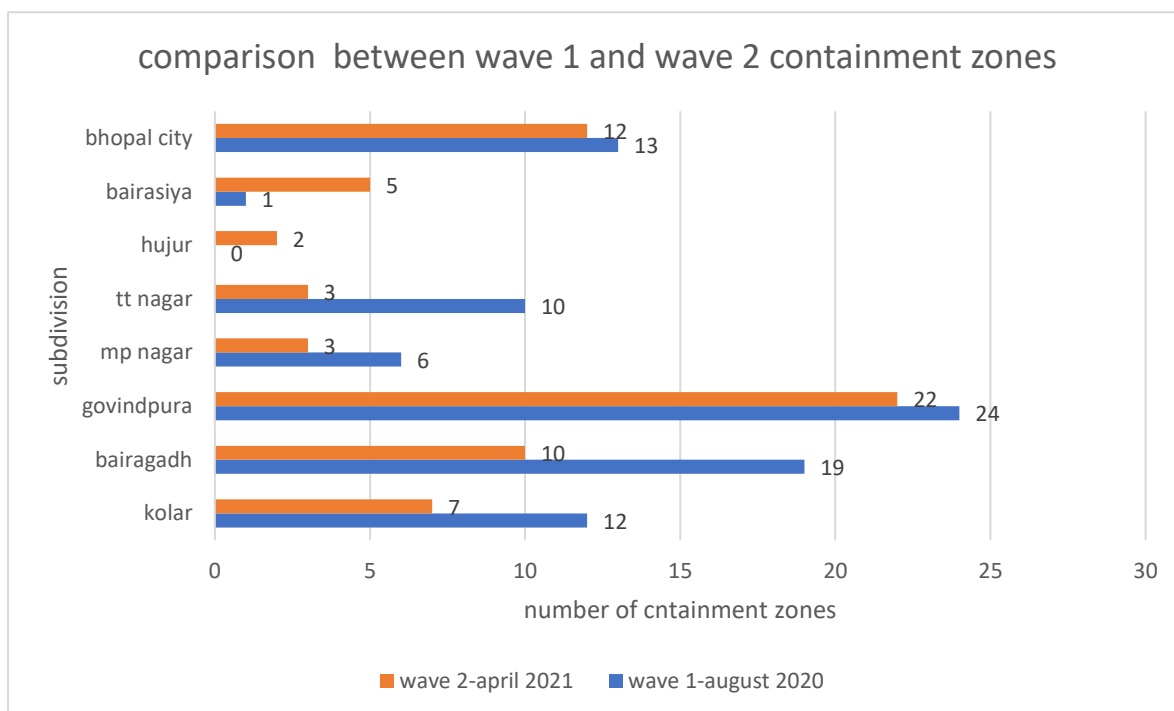
Those areas under the authority of the Govindpura subdivision magistrate (SDM) have the greatest number of containment zones, whereas the Kolar district has the greatest number of buffer zones. As of August 2020, there are a total of 85 containment zones and 84 buffer zones in place (wave 1)



April was the peak month for the spread of the second wave of infection. area under govindpura sdm have the maximum number of containment zones.

containment zones are defined as “marking of first contact areas of the reported positive case”

buffer zones are defining as “area adjacent to containment zones



So, from the above analysis we got to know that govindpura sdm have the maximum number of containment zones in both wave 1 and wave 2.

According to 2001 census the total Bhopal population is about 1836784 out of which there are about 968964 males and 867820 females since Bhopal is one of the most important industrial centres of India, it is primarily an industrial city so the density of population is quite high here.

The population density of Bhopal is about **663 people per square kilometre**

There are thousands of industries in govindpura

According to a report prepared by environment protection and coordination organisation (epco) in Bhopal, spm level has increased 10 times the acceptable Indian limit of 100g/cum for residential area. In Bhopal high level of spm are mainly attributable to auto emission and the govindpura industrial estate. Air pollution in govindpura industrial estate is rising because of cumulative effect of industrial unit as well as heavy traffic

As a result of this, we have learned that the quality of the ambient air is directly linked to respiratory illness. It is possible that pollution is associated with an increase in COVID-19 severity and lethality as a result of its effect on chronic illnesses such as cardiovascular disease and diabetes. Experimental investigations have shown that exposure to air pollution results in a reduced immune response, and that the immune system is the most important component in the development of covid and the subsequent fatalities associated with covid.

11. Slums in Bhopal

The total number of slums in Bhopal city is 102,803, with a population of 479,699 people living in them. This represents about 26.68 percent of the entire population of the city of Bhopal. Because of the many factories located near Govindpura and Kolar sdm, there are a large number of slums in the area. There are workers from the Govindpura industry that reside in the neighbourhood. Govindpura is a town in the Bhopal district of Madhya Pradesh, and it has a population of 35138 people. Bhopal is the state capital of Madhya Pradesh. In both the male and female groups, there are 18297 and 16841 individuals. The

land area is about 4.27 square kilometres in size. The population density of the region is 8224 persons per km², and we know that individuals who live in crowded and impoverished places, where it is harder for them to protect themselves against infection, are more likely to suffer negative consequences from the disease. One of these places is Govindpura. Rupnagar slum and Anna Nagar slum are two slums in the vicinity of Govindpura. As a result of this, we have learned that crowding and pollution may be contributing factors to the rapid spread of covid.

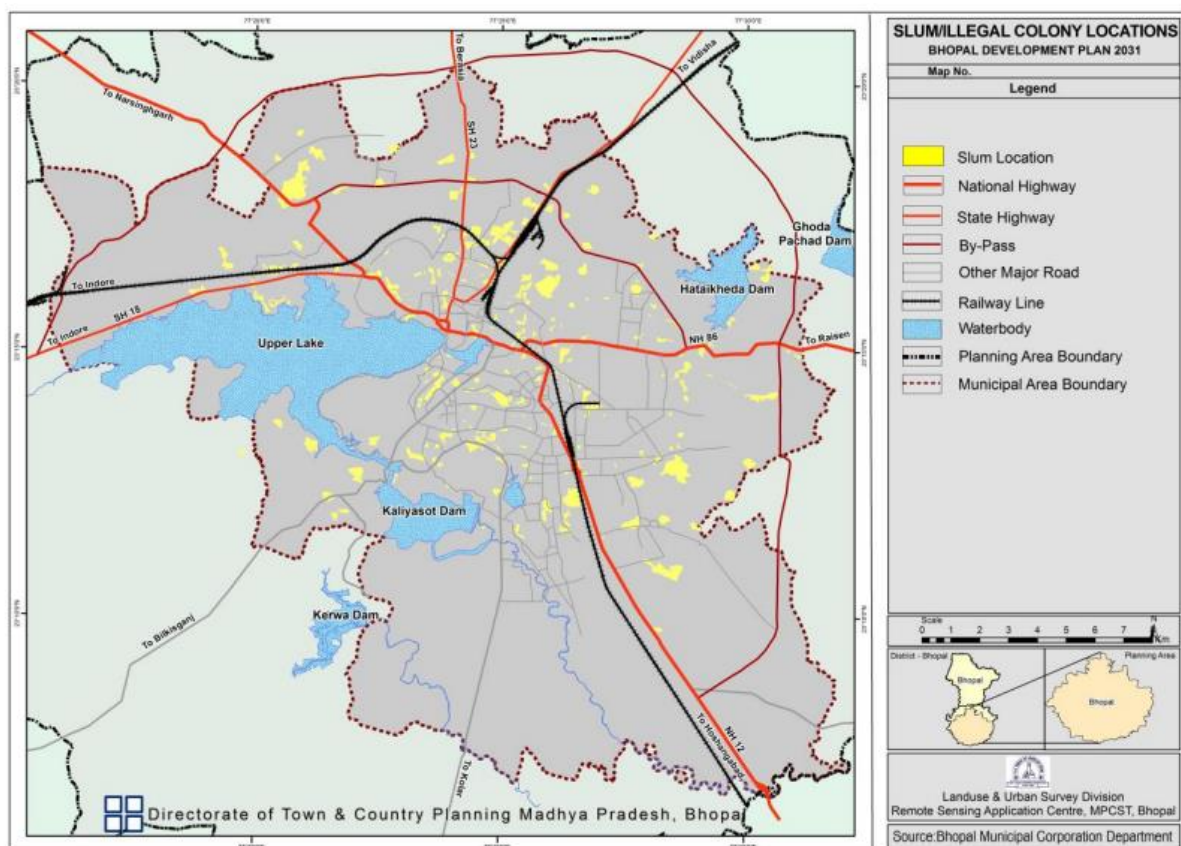


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12. Inferences

From the above analysis we know that as compare to first wave second wave leave more impact , The 2nd wave is evolving at a phenomenal speed as compared to the 1st wave.

13. References

1. https://bhopal.nic.in/en/cont_area_map_bhopal/
2. <https://goo.gl/maps/CrV9G5M6qTKJqWkW7>
3. <https://www.google.com/url?sa=t&source=web&rct=j&url=https://bhopal.nic.in/en/&ved=2ahUKEwii1tTD08jxAhUTheYKHSvFAAMQFnoECAgQA&usg=AOvVaw3xLkKJvsiApz5gulKC89rL&cshid=1625375557666>
4. <https://www.naidunia.com/madhya-pradesh/bhopal-govindpura-becomes-the-largest-container-area-after-kolar-in-bhopal-6811687>
5. <https://www.censusindia.co.in/towns/bhopal-population-bhopal-madhya-pradesh-802312>
6. <https://www.news18.com/news/india/75-of-covid-19-deaths-in-bhopal-are-survivors-of-1984-gas-tragedy-activists-seek-cms-intervention-2682211.html>
7. <https://timesofindia.indiatimes.com/city/bhopal/active-cases-double-in-9-days-it-took-15-days-at-peak-in-2020/articleshow/81658038.cms>
8. <http://www.bhopalmunicipal.com/>
9. http://mptownplan.gov.in/plan_bhopal.html