

Debating and Implementing Epidemic Prevention in China: Ancient and Modern Perspectives

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ABSTRACT

In his seminal work, *Plague and Peoples*, William McNeil examines the impact of epidemics on world history in different geographical and historical contexts. According to McNeil, epidemic diseases cannot be studied only from a ‘biomedical’ standpoint, disregarding social, economic, cultural and political factors. Human transformation of ecosystems, such as population relocation, urbanization, agriculture-driven deforestation, as well as an extraordinary growth in international trade over the last couple of decades, are decisive issues in the spread and transmission of epidemic-prone diseases.

With the COVID-19 pandemic in its third year, there is little doubt that the so-called ‘triple planetary crisis’ of climate change, loss of biodiversity, and pollution has been further exacerbated by the pandemic. In addition, there is a plethora of issues that have (re)surfaced in relation to the COVID-19 outbreak: the relationship between plagues and places, destructive social behaviors such as victim-blaming and pandemic-denial, the damage caused when there is little trust in governments and institutions, the securitization of health (e.g., border measures to prevent the spread of COVID-19, vaccine nationalism), and the return of old-fashioned public health interventions, such as physical distancing and quarantine.

The primary aim of this paper is to explore the intersection of Confucian social ethics, traditional Chinese medicine (TCM), and the Chinese government’s crisis management strategy against the backdrop of the COVID-19 pandemic. Section 2 offers an insight into premodern Chinese medical thinking on epidemics, centring on the concepts of ‘warm pathogen disease’ [*wenbing*] and ‘febrile epidemics’ [*wenyi*], as well as Chinese understanding of zoonotic diseases. In Section 3, I outline the evolution of epidemic prevention, treatment and control in China, focusing on the interplay of medical measures, institutional designs, and ideational underpinnings of anti-pandemic policies. This section is further divided into five subsections: 3.1. epidemic prevention in premodern China, 3.2. the Manchurian plague (1910-1911) and the introduction of the category of ‘infectious diseases’ [*chuanranbing*], 3.3. the role of TCM in treating and preventing epidemic diseases, 3.4. China’s COVID-19 containment and mitigation strategy, with a particular focus on the Wuhan lockdown and the subsequent adoption of a dynamic zero-COVID policy (DZCP), and 3.5. the role of Confucian social ethics in the time of the pandemic.

As the COVID-19 pandemic progresses, it has become clear that its scope and impact necessitate a comprehensive analytical framework that can help policymakers minimize trade-offs between public health, the economy, and environmental protection. In the conclusion (Section 4), I propose a systems theory-based conceptual framework to study the complexity of China’s crisis management during the ongoing pandemic.

KEYWORDS: epidemic prevention and treatment, traditional Chinese medicine (TCM), warm pathogen diseases [*wenbing*], COVID-19, Confucian social ethics.

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1. INTRODUCTION

In contrast to the United States under President Trump or Brazil under President Bolsonaro, the COVID-19 response in much of East Asia has been competent, focused and rational. Experience with SARS helped decision makers to learn the right lessons - the governments were quick to implement strict border controls, quarantine measures, as well as effective use of contact tracing. Also, in contrast to the ‘mask debate’ in the United States (framed as a debate over liberty and its limits), in East Asia mask-wearing and social distancing were requirements.

The contrast between the response in East Asia and that of the United States (and much of Europe and Latin America) has been interpreted as a classic example of the East - West cultural divide. The mainstream narrative can be roughly summarized as follows: Western culture tends to emphasize the rights of the individual, while in East Asian collectivist societies social harmony is more highly valued.² In other words, scholars contend that cultural factors have played a significant role in controlling the virus in the region, especially during the first phase of the crisis (that is, the first half of 2020). In an interesting analysis of China’s COVID-19 response, Rana Mitter posits that China’s collectivist response to combat COVID-19 can be understood as the product of both the Marxist-Leninist ideals that underlie the Chinese government and the Confucian principles that permeate Chinese society. He explains:

[...] there is genuinely a more collectivist response to crisis in China than in many liberal societies. And one reason for that is **the legacy of Marxist-Leninist influence**, reinterpreted by Mao Zedong during the Cold War, and still explicitly endorsed by Xi Jinping [...]. Mao’s reading of Marxist theory involved the development of the idea of the ‘mass line’ [群眾路線], a form of popular participation in politics that involved the party going out widely and deeply into society to find out what they thought about an issue. In that sense, there was a form of democratic input into policy. But the party’s response was far from liberal: once the mass line had been decided, the rulers’ word was final, with no dissent tolerated. Today, politics in China on key issues – which would certainly include the response to the coronavirus - works on a similar basis: find out what is happening, then send down an edict which brooks no argument.

Yet Marxism is by no means the only influence on Chinese social and political thinking. **The legacy of the Confucian heritage** that shaped China for over 2,000 years is still very much present. [...] Yet one of the most notable elements of the post-Mao Chinese Communist Party was its willingness to embrace Confucius once again. There were multiple reasons for that, including somewhat cynical issues of control: an ethical system

² See, for example, Gelfand et al., “The Relationship between Cultural Tightness–Looseness and COVID-19 Cases and Deaths: A Global Analysis”; Sachs, “Reasons for Asia-Pacific Success in Suppressing COVID-19”; and Fan, “Dayi Dangqian: Suzhu Rujia Wenmingde Lunli Ziyuan.”

that stresses hierarchy and knowing your place is useful for a top-down party that wants to stifle dissent. Yet there are other, more central values that make Confucianism resonant: it stresses mutual obligation, learning from previous examples, and a wider idea of ‘benevolence’ [仁]. These values [...] come in very useful in understanding why sacrificing some individual liberties (as in a lockdown) [...] are an act of benevolence toward fellow-humans, which in turn earn reciprocal respect and affection.³

Taking Mitter’s observation as a starting point, this paper sets out to explore the intersection of Confucian social ethics, traditional Chinese medicine (TCM), and the Chinese government’s crisis management strategy against the backdrop of COVID-19 pandemic. Section 2 offers an insight into premodern Chinese medical thinking on epidemics, centring on the concepts of ‘warm pathogen disease’ [溫病] and ‘febrile epidemics’ [瘟疫 · 溫疫], as well as Chinese understanding of zoonotic diseases.⁴ In Section 3, I outline the evolution of epidemic prevention, treatment and control in China, focusing on the interplay of public health measures, institutional designs, and ideational underpinnings of anti-pandemic policies. This section is further divided into five subsections: 3.1. epidemic prevention in premodern China, 3.2. the Manchurian plague (1910-1911) and the introduction of the category of ‘infectious disease’ [傳染病], 3.3. the role of TCM in treating and preventing epidemic diseases, 3.4. China’s COVID-19 containment and mitigation strategy, with a particular focus on the Wuhan lockdown (23 January - 8 April 2020) and the subsequent adoption of a dynamic zero-COVID policy [DZCP], and 3.5. the role of Confucian social ethics in the time of the pandemic. As the COVID-19 pandemic progresses, it has become clear that its scope and impact necessitate a comprehensive analytical framework that can help policymakers minimize trade-offs between public health, the economy, and environmental protection. In the conclusion (Section 4), I propose a systems theory-based conceptual framework to study the complexity of China’s crisis management during the ongoing pandemic.

2. PREMODERN CHINESE UNDERSTANDING OF EPIDEMICS

Epidemics have occurred regularly throughout China’s history. According to Gong et al., there were 890 years in which epidemics were present within the territory of China from 770 BCE to CE 1949. Although epidemics broke out almost annually from the mid-fifteenth to the mid-twentieth century, epidemic years in the southeast region significantly exceeded those of central and northwest China.⁵

³ Mitter, “China’s Ideological Ghosts: How Confucianism and Communism Have Guided China’s Covid-19 Response.”

⁴ The term ‘premodern’ includes here Antiquity, the Middle Ages and Early Modern. Traditional Chinese Medicine (TCM) is a holistic system of diagnosis and treatment that has been in existence for at least two thousand years. Following the introduction of modern Western Medicine (also known as biomedicine) in the 19th century, both Western Medicine and TCM have been practiced alongside each other within China’s healthcare system.

⁵ Gong et al., “Zhongguo 3000 Nian Yizai Liuxingde Shikong Tezheng ji qi Yingxiang Yinsu.”

Epidemics and wars often go hand in hand. The Battle of Red Cliffs, one of the largest naval battles in history, took place in the winter of 208-209 CE. On one side, there was the northern warlord Cao Cao [曹操; 155-220 CE] with his enormous army; on the other side, the southern warlords Liu Bei [劉備; 161-223 CE] and Sun Quan [孫權; 182-252 CE] who formed an alliance but were still numerically inferior when compared to Cao Cao's forces. Despite an apparently smaller army, Liu Bei and Sun Quan managed to frustrate Cao Cao's effort and win this decisive battle. *The Records of the Three Kingdoms* offers a hint as to why Cao Cao's army failed:

公至赤壁，與備戰，不利。於是大疫，吏士多死者，乃引軍還。⁶

[Cao Cao] reached the Red Cliffs and started preparing for war. But this was not an auspicious time - **an epidemic** broke out and many officers and soldiers died. [Cao Cao] had no choice but to withdraw the army.

Between the 8th and 10th centuries, the Nanzhao Kingdom [南詔] separated Tang China and the Tibetan Empire from the Southeast Asian states. The Tang-Nanzhao relations fluctuated between peaceful coexistence and border tensions which often escalated into military confrontations. In the year 754 CE, general Li Mi [李密; 698-754 CE] attacked the Nanzhao Kingdom with an army of 70,000 men. *The Comprehensive Mirror for the Aid of Government* discusses the reason behind Li's defeat:

李必將兵七萬擊南詔。閣邏鳳誘之深入，至大和城，閉壁不戰。密糧盡，士卒罹瘴疫⁷及飢死什七八，乃引還；蠻追擊之，密被擒，全軍皆沒。⁸

General Li Mi attacked the Nanzhao Kingdom with a 70,000-strong army. [King] Geluofeng lured the army into Nanzhao's interior, then retreated into Dahe Fortress and did not fight. Li's army ran out of provisions, and a great many soldiers died due to **a miasmatic epidemic** and hunger. Consequently, Li had no choice but to withdraw. But Nanzhao pursued the retreating army; general Li was captured and the army was annihilated.

Several references to epidemics centre on the Mongol invasion of Sichuan in 1258-1259. The *History of Yuan* records that in 1258 the Great Khan Mongke [蒙哥汗; 1209-1259 CE] launched an attack on

⁶ 三國志·魏書·武帝紀第一. All translations by the author, unless otherwise noted.

⁷ The term 'miasma' [*zhang* 瘴] features in the biography of the Han general Ma Yuan [馬援; d. 49 CE]. After returning from a successful campaign against the Yue people, many of his soldiers fell ill and died of a 'miasmatic epidemic' [*zhangyi* 瘴疫] they contracted in the south. The character [瘴] denotes pestilential vapours thought to rise from damp areas and to cause disease (Han, *Songdai Wenyide Liuxing yu Fangzhi*, 91-92).

⁸ 資治通鑑·卷二百一十七·唐紀三十三·玄宗天寶十三載.

the Song positions in Sichuan. In the following year, during the siege of the Diaoyu Fortress, an epidemic spread among the Mongol forces:

己未夏，駐合州之釣魚山，軍中大疫，咸議班師。⁹

In the summer of 1259, **an epidemic** broke out among the [Mongol] besiegers of the Diaoyu Fortress in Hezhou. [Thus] there was general agreement that the [Mongol] army should withdraw.

In all these cases, the epidemics presented themselves to all involved as concomitants of wars and/or dynastic changes, key factors transforming local and regional trajectories.

The COVID-19 pandemic has demonstrated that the age of plagues is not over, that microbes continue to threaten. In the early stages of the pandemic, scholars struggled to pinpoint the zoonotic origins of the disease. We also saw the ‘old-fashioned’ public health interventions, such as physical distancing and quarantine being brought back in favour. In China, the government has relied on TCM herbal formulas to fight COVID-19 surges, prompting a discussion on the categorization of the disease from the perspective of TCM.¹⁰ To get a better grasp of the context of the COVID-19 pandemic in China, the remainder of this section offers a brief overview of premodern Chinese medical thinking on warm pathogen diseases [溫病] and febrile epidemics [瘟疫·溫疫] as well as an understanding of zoonotic transmission.

2.1. Premodern Chinese Medical Thinking on *Wenbing* and *Wenyi*

Needless to say, any historical survey of epidemics must concern itself with culturally specific terminology. The most prominent term used to refer to epidemic/pestilence in pre-modern China was *yi* [疫]. The term denotes epidemics in a general sense - the *Shuowen Jiezi* defines *yi* [疫] as ‘a situation when all people are sick’ [民皆疾也]. As shown above, pre-modern Chinese sources often describe outbreaks of epidemics using such terms as *yi* [疫], *dayi* [大疫] or *zhangyi* [瘴疫].

The term ‘epidemic-prone diseases’ denotes diseases that tend to spread throughout a given population because they are easily transmitted from person to person. During the current outbreak of novel coronavirus TCM practitioners have utilized a Warm Pathogen Disease Doctrine (WPDD) [溫病學] to treat COVID-19. This section offers a brief overview of premodern Chinese medical thinking on

⁹ 元史·卷一百五十五·列傳第四十二·史天澤。

¹⁰ It has also reignited debate over the efficacy of TCM herbal formulas. The author of this study holds degrees in Sinology and International Relations, and, as such, is not qualified to discuss the matter of drug efficacy. For the WHO’s position on the issue, see, WHO, *WHO Expert Meeting on Evaluation of Traditional Chinese Medicine in the Treatment of COVID-19*. For a critique of the inclusion of traditional medicines into the 11th version of the WHO’s *International Statistical Classification of Diseases and Related Health Problems*, see Cyranoski, “Why Chinese Medicine is Heading for Clinics around the World.”

warm pathogen diseases [*wenbing* 溫病] and febrile epidemics [*wenyi* 瘟疫 · 溫疫] to show how the WPDD has evolved and persisted to this day to become a component of China's COVID-19 standard therapy.

Wenbing was first defined during the Han dynasty (202 BCE - 220 CE) as a specific type of cold damage disorder [傷寒]:

傷寒有五，有中風，有傷寒，有濕溫，有熱溫，有溫病，其所苦各不同。[...] 溫病之脉，行在諸經，不知何經之動也，各隨其經所在而取之。¹¹

There are five kinds of cold damage. These include wind invasion, cold damage, damp-warmth disease, hot disease, and **warm pathogen disease**. In each case the complaints are different. [...] In case of a warm pathogen disease, [the movement in] the vessels [is characterised by the fact that this illness] proceeds through all conduits. It is impossible to know to which conduit a movement is related. In this case one takes [the evil influences] away from the conduit where they just happen to be.

The above quotation from *The Classic of Difficult Issues* discusses five different types of externally contracted diseases: 1) wind invasion [中風], 2) cold damage [傷寒], 3) damp-warmth disease [濕溫], 4) hot disease [熱病], and 5) warm pathogen disease [溫病]. It must be noted that in the above excerpt the first use of the term 'cold damage' [傷寒有五] refers to all five types of diseases that arise from the detrimental effect of the cold weather of the winter, whereas the second use of the term [有傷寒] refers to this particular subset of cold damage disorders which manifest themselves in the winter.¹² The medical worldview of the Han Dynasty reflected the agrarian cycle of seasonal change - within this framework, warm pathogen diseases were understood to be spring illnesses occurring due to latent cold acquired during the winter.¹³

Under the Song dynasty (960-1279 CE), following the Bureau for Revising Medical Texts [校正醫書局] critical re-edition of Zhang Zhongjing's [張仲景; 150-219 CE] writings, the Cold Damage Doctrine [傷寒論] became the main point of reference for Song scholar-physicians in their fight against epidemics. While some of them focused on systemizing the doctrine and making it more accessible for laypeople, others pointed out inconsistencies. For example, Guo Yong [郭雍; 1106-1187 CE] argued that, unlike cold damage disorders, febrile epidemics [溫疫] were caused by anomalous qi [不正之氣而病] that could occur any time of the year [以一歲之中] and were highly contagious [一方一鄉一家

¹¹ 難經 · 泄傷寒 · 五十七. Translation modified from Unschuld, *Nan Jing: The Classic of Difficult Issues*, 515.

¹² Ma, *Wenbingxue*, 10. See also, Liu, *Warm Pathogen Diseases: A Clinical Guide*, 6.

¹³ 皇帝內經 · 素問 · 生氣通天論篇第三. The term 'cold' [寒] denotes here one of the external pathogenic factors [邪氣] - these pathogenic factors are conceptually analogous to the viruses and bacteria of biomedicine.

皆同此病者]. Thus, he concluded, febrile epidemics cannot be categorized as cold damage disorders [與傷寒大異].¹⁴

Active during the century of major disease outbreaks (1567-1666), the scholar-physician Wu Youxing [吳有性; 1582-1652 CE] moved from the traditional medical view of correspondence between seasonal cycles and illnesses to propose that febrile epidemics [瘟疫] are caused by a kind of pestilential local *qi* [疠氣]:

《序》：瘟疫四時皆有。

《上卷》：疫者感天地之疠氣，在歲有多寡；在方隅有濃薄；在四時有盛衰。此氣之來，無論老少強弱，觸之者即病。¹⁵

《Introduction》：Febrile epidemics can occur at any time of the year.

《First Fascicle》：Those affected by the **pestilential *qi*** are of any age, can be found in every corner of the country, and can succumb to the disease at any time of the year. At the occurrence of the [pestilential] *qi*, whoever comes in touch with it, regardless of age and health condition, will succumb to the disease.

Wu also contended that *liqi* [疠氣] can be transmitted from one person to another (unlike wind, cold and dampness), acts as a toxin once it invades the body, and does not manifest symptoms soon after exposure to the pathogen.¹⁶ As noted by Hanson, Wu's epidemiology, as presented in the *Treatise on Febrile Epidemics*, represented a major shift among Ming and Qing physicians 'from a universal-cosmological to a local-environmental framework.'¹⁷

Early Qing scholar, Dai Tianzhang [戴天章; 1644-1722 CE] provided a list of diagnostic criteria used to identify febrile epidemics - this list included the quality of the patient's *qi* [氣], his/her complexion, tongue, disposition and pulse.¹⁸ Regarding the concept of warm pathogen diseases, Wu Tang [吳瑭 1758-1863], a physician-scholar based in Beijing, assembled previously scattered earlier references to *wenbing* [溫病] to publish the *Systematic Analysis of Warm Pathogen Diseases* in 1812. In his work, Wu subdivided warm pathogen diseases into 1) wind fever [風溫], 2) heat fever [溫熱], 3) febrile epidemics [溫疫], 4) warm toxin (溫毒), 5) summer heat fever (暑溫), 6) damp fever (濕溫), 7), autumn dryness (秋燥) 8) winter fever (冬溫), and 9) warm malaria (溫虐). As can be seen from the above, in Wu's classification, febrile epidemics [溫疫] became a sub-category of warm pathogen diseases [溫病]. He also summarized the course of transmission of warm pathogen diseases based on a three burner differentiation scheme [三焦辯證] - the pathogens attack the body through the nose and

¹⁴ 仲景傷寒補亡論·卷十八·傷寒溫疫論一條。

¹⁵ 瘟疫論·序;上卷。

¹⁶ Liu, *Warm Pathogen Diseases: A Clinical Guide*, 14.

¹⁷ Hanson, "Late Imperial Epidemiology Part 2: New Material and Conceptual Methods, 1980s to 2010s," 272.

¹⁸ Loi-Koe, "Ancient Pulse Taking, Complexions and the Rise of Tongue Diagnosis in Modern China," 173.

mouth (that is, via the respiratory tract), which pertain to the lung and the stomach respectively; from here, if not properly treated the pathogens will progress further to the middle burner [中焦]; if left untreated, the disease will progress to the lower burner [下焦]:

《卷一·上焦篇》: **溫病者**: 有風溫, 有溫熱, 有**溫疫**, 有溫毒、有暑溫、有濕溫、有秋燥、有冬溫、有溫瘧。

《卷二·中焦篇》: **溫病**由口鼻而入, 鼻氣通於肺, 口氣通於胃。[...] 上焦病不治, 則傳中焦, 胃與脾也, 中焦病不治, 即傳下焦, 肝與腎也。¹⁹

《Chapter 1 · Upper Burner》: There are nine types of **warm pathogen diseases**. These include wind fever, heat fever, **febrile epidemics**, warm toxin, summer heat fever, damp fever, autumn dryness, winter fever, and warm malaria.

《Chapter 2 · Middle Burner》: The [warm] pathogens attack the body through the nose and mouth, which pertain to the lung and the stomach respectively [...] If not properly treated in the upper burner, [the pathogens] will progress further [down] to the middle burner and attack the stomach and spleen. If left untreated, [the pathogens] will progress [down] to the lower burner and attack the liver and kidney.

From the 17th through 19th centuries, the Warm Pathogen Disease Doctrine (WPDD) [溫病學] developed as an independent category of therapeutics with distinct diagnostic methods and herbal remedies. In the early years of the People's Republic of China (PCR), the WPDD became the core course at colleges of TCM [中醫學院], with TCM scholars making attempts to systemize the aetiology, pathology and treatment of warm pathogen diseases.²⁰ As things stand at present, warm pathogen diseases [溫病] are most often equated with the Western medicine category of febrile illnesses, that is, externally contracted diseases which cause one's temperature to rise and fever symptoms to set in. The term typically encompasses a range of illnesses from common respiratory to febrile illnesses and acute infectious diseases. The most virulent and contagious form of warm pathogen diseases are known as febrile epidemics [溫疫].²¹ In China, TCM practitioners utilize WPDD to treat both common respiratory illnesses and severe infectious diseases, with SARS and COVID-19 being prominent examples of the latter.²²

2.2. Premodern Chinese Understanding of Zoonotic Transmission

¹⁹ 溫病條辨·卷一·上焦篇; 卷二·中焦篇。

²⁰ See, for example, Zhao et al., *Wenbing Zongheng*.

²¹ Ma, *Wenbingxue*, 10. See also, Hanson, *Speaking of Epidemics in Chinese Medicine*, 15-24.

²² On the application of WPDD to the diagnosis and treatment of COVID-19, see Liu and Wang, “Wenbingxue Lilun Zhidaoxiade Xinxingguanzhuangbingdufeiyang Zhenzhi Quyī”; and Zhu et al., “Cong Wenbingxue Lilun Qiantan Xinxingguanzhuangbingdufeiyangde Zhongyi Zhenzhi.”

At present, more than 60% of human infectious diseases are caused by pathogens shared with wild and domestic animals, and over 75% of emerging diseases (including COVID-19) are zoonotic in origin.²³ The zoonotic transmission of the pathogens from animals to humans is a pivotal mechanism by which infectious diseases have afflicted humans throughout history. The animal species that harbor the pathogen, the nature of human interaction with that animal and the frequency of these interactions modify the mode of zoonotic transmission.

In premodern China, infectious diseases were often associated with the concept of ‘poison’ [*du* 毒] and were considered to be transferable between animals and humans.²⁴ Among the dietary prohibitions listed by Zhang Zhongjing [張仲景; 150-219 CE] in his *Essential Prescriptions from the Golden Cabinet*, was eating cattle which died of infectious disease, whose eyes turned red or yellow. The flesh of the cattle could sicken the eater, causing diarrhoea and indigestion:

疫死牛，或目赤，或黃，食之大忌 [...] 疫死牛肉，食之令病洞下，亦致堅積，宜利藥下之。²⁵

The flesh of dead cattle whose eyes turned red or yellow must not be eaten [...] The flesh of dead cattle can sicken the eater, causing abdominal pains, borborygmus, and diarrhoea. Since the toxin accumulates in the kidney, one needs to take medication to get rid of it.

From the above it can be presumed that, as early as third century CE, Chinese physicians allowed for the possibility of disease transmission (in the form of infectious poison) from animals to humans through diet.

Zhou Mi’s [周密; 1232-1298] famous *biji* [筆記], *Miscellaneous Observations from the Guixin Street*, consists of jottings that record and discuss a wide range of affairs organized into a number of sections and categories. Regarding animal-to-human transmission, Zhou made the following observation about butchering and eating the meat of sick horses and donkeys:

凡驢馬之斃者，食之，皆能殺人，不特生疔瘡而已。豈特食之，凡剝[病]驢馬，亦不可近，其氣薰人，亦能致病，不可不慎也。今所賣鹿脯多用死馬肉為之，不可不知。²⁶

As for donkeys and horses that collapsed [and died], consuming their meat will result in [an infection in the form of] carbuncles and [even] death. Nor is this all. Butchers who

²³ Mackenzie and Williams, “Zoonoses,” 3.

²⁴ For an overview of premodern Chinese understanding of zoonotic diseases, see Lu, “History of Epidemics in China: Some Reflections on the Role of Animals.”

²⁵ 金匱要略·禽獸魚虫禁忌并治第二十四. The translation of the term [*dongxia* 洞下] is based on Mori, *Bunko Kinki Youryaku*, 217.

²⁶ 癸辛雜識·續集下.

slaughter such dead animals may inhale a [poisonous] *qi* and become sick. One needs to be careful. Nowadays, at the wet markets, traders often [cheat on customers] selling meat from sick horses labelled as dried venison. One needs to be aware of it.

Feng and Feng interpret the term [薰人] as an ‘airborne transmission’ [空氣傳染] and the whole account as evidence of anthrax [炭疽病].²⁷

One hundred years later, in a prescription text titled *The Formulary for General Aid*, in a section devoted to horse and donkey diseases, we find a similar story of butchers who cut up and came in contact with dying horses and were themselves killed by the poisonous *qi* [毒氣] from the animals:

夫馬驢氣之病。

如開剝馬驢時。切忌手指間有瘡痕。及誤傷刀。其涎入內。毒氣發也。²⁸

Diseases resulting from [contact with] horses and donkey’s *qi*.

To skin horses and donkeys, [the butcher] must be absolutely sure that there are no open wounds on his fingers. Also, he must be careful not to injure himself with the knife.

[Through open wounds] horse saliva may enter [the body]. [During the slaughter process] a **poisonous *qi*** is [also] released.

As can be seen from the above examples, records of the infectious diseases that killed both humans and livestock appear regularly in premodern Chinese sources. This type of disease was often associated with diet and/or the concept of *du* [毒] and was considered to be transferrable between animals and humans.

In August 2022, an international team of researchers reported in *ScienceMagazine* that live animals sold at the Huanan Seafood Wholesale Market in Wuhan [武漢華南海鮮批發市場] were the likely source of the COVID-19 pandemic that has claimed 6.6 million lives since it began nearly three years ago. While eliminating alternative scenarios that have been suggested as origins of the pandemic, the authors concluded that the first spread to humans from animals likely occurred in two separate transmission events in the Huanan Market in late November 2019.²⁹

Researchers also point to bigger issues - not the market itself - as the root cause of COVID-19. According to a 2017 report commissioned by the Chinese Academy of Engineering, hundreds of millions of wild animals from hundreds of species are farmed for sale in China. The report estimates the industry, which employs about 14 million people, is worth ca. RMB 520 billion [ca. USD 74 billion].³⁰ In February 2020, the National People’s Congress (NPC) imposed a temporary ban on wildlife trade and

²⁷ Feng and Feng, “Renshou Gonghan Tanjubing Gujin Kao,” 291-294.

²⁸ 普濟方·卷三百六·諸蟲獸傷門·驢馬傷。

²⁹ Worobey et al., “The Huanan Seafood Wholesale Market in Wuhan Was the Early Epicenter of the COVID-19 Pandemic.”

³⁰ Zhongguo Gongchengyuan, “Zhongguo Yesheng Dongwu Yangzhi Chanye Kechixu Fazhan”, ii.

suspended captive breeding programs until further notice.³¹ At the end of 2022, the NPC passed a revised *Wildlife Protection Law* [野生動物保護法] which came into effect on May 1, 2023. The newly revised Law includes the prevention of zoonosis spillover, the management of captive-bred wild animals, and stipulation regarding the responsibility of the private sector in wildlife crime prevention.³² While the scientists have welcomed the new Law (especially the restrictions on the wildlife meat trade), they also point to its weaknesses - the continuation of mammal fur farms and the relaxation of rules governing the captive breeding of animals used in TCM and as pets.³³ Worse yet, experts warn that, in the long run, closing wet markets [濕貨市場] and banning wildlife consumption, will not be enough to avert disease outbreaks. As agriculture expands and intensifies around the globe, different animal species that do not normally come into contact will increasingly mix and exchange pathogens, creating a viral ‘melting pot’.

3. EPIDEMIC PREVENTION, TREATMENT AND CONTROL

Broadly speaking, the response to an epidemic is typically based on four key pillars: 1) surveillance and detection, 2) clinical management of cases (= treatment), 3) prevention of spread within the community, and 4) maintenance of essential services. Epidemic prevention measures can be further subdivided into containment and mitigation, with the former aiming to minimise the risk of transmission from infected to non-infected individuals and the latter aiming to slow the spread of disease through social-distancing, lockdowns and improvement of personal and environmental hygiene.³⁴ In this section, I will outline the evolution of epidemic prevention, treatment and control in China, focusing on the interplay of public health measures, institutional designs, and ideational underpinnings of anti-pandemic policies.

3.1. Epidemic Prevention in Premodern China

Epidemic prevention measures were in place in China as early as the Jin Dynasty [265-420 CE]. *The Book of Jin* records an early example of physical distancing and quarantine:

永和末，多疾疫。舊制，朝臣家有時疾，染有三人以上者，身雖無病，百日不得入宮。³⁵

In the final years of Yonghe Period (345-356 CE) epidemics abounded. Under the old rules, if a courtier had three or more family members infected by the disease, even if he himself was not sick, he would be forbidden from entering the palace for one hundred days.

³¹ Quanguo Renmin Daibiao Dahui, “Guanyu Quanmian Jinzhi Feifa Yesheng Dongwu Jiaoyi, Gechu Lanshi Yesheng Dongwu Louxi, Qieshi Baozhang Renmin Qunzhong Shengming Jiankang Anquande Jueding.”

³² Quanguo Renmin Daibiao Dahui, “Yesheng Dongwu Baohufa.”

³³ Normile, “China is Cracking Down on Its Wildlife Trade. Is It Enough?”

³⁴ OECD, “Flattening the Covid-19 Peak: Containment and Mitigation Policies.”

³⁵ 晉書·列傳第四十六·王彪之傳.

The Song government was aware of the devastating impact epidemics can have on society, listing them along with drought, flood and cattle plagues as the ‘four great disasters that afflict people’.³⁶ During the 11th and 12th centuries, changes in distribution of population and new patterns of trade and urbanization moved the epidemiological frontier to the south of China, forcing Song government officials to come up with a comprehensive health crisis management plan.³⁷

To begin with, in 1044, the government created the Imperial Medical Service [太醫局], a move that contributed greatly to the formation of the scholar-physician [儒醫] class. Scholar-physicians’ work ethos, with its roots in the Confucian ideal of self-cultivation for the betterment of society as a whole, included the principle of ‘attaining knowledge through the investigation of things’ [格物致知] - an ideational underpinning of the advances made in science and technology during the Song dynasty.³⁸ Next, in 1057, the Bureau for Revising Medical Texts [校正醫書局] was established. A government agency responsible for the revision and publication of medical texts (predominantly focused on cold damage disorders), the Bureau contributed greatly to the dissemination of medical knowledge across the Song Empire.³⁹ Lastly, in 1076, the government established the People’s Welfare Pharmacy [惠民藥局], a public health-oriented institution designed to control medicinal drug market, supply a wide range of drugs at subsidised prices, as well as sell ready-made herbal prescriptions.⁴⁰

As for maintaining essential services, the Ministry of Revenue [戶部] was in charge of relief funds and food distribution, while the Ministry of Rites [禮部] was responsible for management of corpses during the pandemic.⁴¹ Regarding premodern immunization efforts, it appears that smallpox inoculation [人痘接種術] was common in China as early as 16th century - the earliest written discussion of variolation is found in the *Heart Method for Smallpox* [痘疹心法], a book first published in 1549.⁴² Some scholars, however, believe that variolation in China was first practiced as early as 11th century.⁴³

In spite of all these efforts, devastating epidemics continued to sweep through China. Among the many reasons for this was the obscurity of the concept of ‘contagion’ [*chuanran* 傳染]. Although as early as the Sui Dynasty (581-618 CE) physicians were aware of various modes of disease transmission,

³⁶ 宋史·列傳第一百九十·儒林一·邢昺傳。

³⁷ The Western Han Dynasty census (2 BCE - 2 CE) recorded 9,737,445 households in the north and 2,619,025 households in the south of China. However, according to the 1102 CE census, the number of households in the north stood at 6,178,239, whereas the number of households in the south of China rocketed to 11,122,679 (Ran, *Zhongguo Lidai Hukou, Tianji, Tianfu Tongji*, 14-17; 152-160).

³⁸ Sun, “Songdai Shirende Shangyi Guannian ji Yingxiang,” 71-71.

³⁹ For a detailed analysis, see, Goldschmidt, “Epidemics and Medicine during the Northern Song Dynasty.”

⁴⁰ Jiao, “Songdai Guanyaoju Yuanliu Zaikao: Jianlun Lixue Sichao dui Qi Xingzhi Shanbiande Yingxiang,” 36-38.

⁴¹ Han, *Songdai Wenyide Liuxing yu Fangzhi*, 144.

⁴² Needham, *Science and Civilization in China, VI*:6, 134.

⁴³ To give but one example, in his *Definitive Discussion of Smallpox* [痘疹定論], Zhu Chungu [朱純嘏; 1634-1718 CE] mentions a doctor active during the reigns of Emperor Zhenzong (真宗; 997-1022 CE) and Emperor Renzong (仁宗; 1023-1063 CE) in the area of Emei [峨眉], who carried out smallpox inoculation (as cited in Chen, “Rendou Jiezhongshu Zuizao Qiyuan yu Woguo,” 98).

the widespread practice of ‘fleeing the pandemic’ [避疫] contributed greatly to the spread of contagious diseases.

In the *Treatise on the Origins and Symptoms of Medical Disorders*, Chao Yuanfang [巢元方; 550-630] discusses various modes of disease transmission, using such terms as [ranjian 染漸], [xiangran 相染], or [ranyi/zhuyi 染易/注易]. In Chapter 10 of the *Treatise* that deals with the symptoms of warm pathogen diseases, Chao describes an unseasonable ‘perverse qi’ [乖戾之氣] that ‘contaminates and exchanges [hosts]’ [轉相染易] with tragic results:

人感乖戾之氣而生病，則病氣轉相染易，乃至滅門，延及外人。⁴⁴

Those attacked by the perverse *qi* become ill. [Worse yet] this pathogenic *qi* **spreads from one person to another**; it exterminates entire families and attacks bystanders.

Even though the premodern Chinese physicians developed the idea of the spread of disease by contamination, at the same time (as shown in Section 2.1.) they considered epidemics to be caused by pestilential local *qi* [癘氣], thus encouraging people to move out of the disease-causing location, that is, to ‘flee the pandemic’ [避疫]. In premodern China, it was common that, once a patient was found to suffer from a plague in one household, nearby families all moved out of the neighbourhood, spreading the disease and putting even more people in danger of infection.⁴⁵ The above pattern of behaviour was to change following the outbreak of the Manchurian Plague in 1910.

3.2. The Manchurian Plague (1910-1911) and Its Aftermath

Wu Lien-teh [伍連德; 1879-1960 CE], born in British Malaya, was one of the first ethnic Chinese to study modern medicine in England. In 1908, he was appointed Vice-director of the Imperial Army Medical College in Tianjin.⁴⁶ Two years later, when the pneumonic plague [肺炎性鼠疫] broke out in Manchuria, Doctor Wu was sent to Harbin to supervise the government’s containment and eradication efforts.

In October 1910, a mysterious plague broke out in Manzhouli [滿洲里] on the border between China and Russia and within two months threatened China’s heartland. The three railway centres of Harbin, Changchun, and Shenyang became the epicentres of the outbreak. Unsurprisingly, the plague was a serious threat to the Qing’s government already feeble sovereignty – the government was concerned that Japan and Russia would use plague containment as an excuse to expand their influence in Manchuria.⁴⁷

⁴⁴ 諸病源候論·卷之十·溫病諸候. For a detailed analysis of the genealogy of the concept of ‘contagion’ [chuanran 傳染], see Leung, “The Evolution of the Idea of *Chuanran* Contagion in Imperial China.”

⁴⁵ Yu, “Cong Biyi dao Fangyi: Wanqing Yinying Yibing Guanniande Yanbian,” 51-54.

⁴⁶ For an exhaustive biography of Wu Lien-teh, see Li, “Faxien Wu Liande: Nuobeierjiang Houxuanren Huaren Diyiren.”

⁴⁷ Nathan, *Plague Prevention and Politics in Manchuria, 1910-1931*, 3-6.

Upon his arrival at Harbin in December 1910, Doctor Wu had an opportunity to perform a postmortem examination of a plague victim - he detected some organisms in the corpse that appeared to be the same *Bacillus pestis* [鼠疫桿菌] that the Japanese scientist Kitasato Shibasaburo [北里柴三郎; 1853-1931 CE] had isolated and identified during the bubonic plague outbreak in Hong Kong in 1894. However, in contrast to Hong-Kong plague cases, these bacilli were found exclusively in the victim's lungs. Doctor Wu's discovery suggested that the Manchurian plague was very different in nature from the Hong-Kong plague - it was an airborne disease transmitted directly through person-to-person contact, instead of through rat fleas, as in the Hong-Kong bubonic plague.⁴⁸

Knowing no cure for the plague, Doctor Wu focused on identifying plague cases and separating the patients from suspected cases – confirmed plague patients were placed in the plague hospitals, while their contacts were sent to emergency isolation facilities (constructed from railway wagons lent by the Russian-controlled Chinese Eastern Railway).⁴⁹ Doctor Wu also recruited six hundred policemen to be trained in anti-plague work and urged the governments to strictly control all railway traffic in Manchuria. To protect people from direct infection through the respiratory tract, Doctor Wu designed gauze masks and demanded that both sanitary staff members and the general public wear them according to instructions.⁵⁰

Anti-plague measures implemented in Manchuria were much more rigorous and intrusive than those carried out in Hong-Kong during the 1894 bubonic plague. As a result, some TCM doctors challenged the necessity of anti-plague measures perceived by the public as brutal and cruel. Doctor Dugald Christie [1855-1936], a Scottish medical missionary in Manchuria, recorded in his memoir an incident in Fengtian. The Local Chamber of Commerce, dissatisfied with the negative impact of anti-plague measures on businesses, decided to establish its own plague hospital and invited Dr Christie to take charge of its operation. After he turned down their invitation, the merchants invited two famous practitioners of Chinese medicine to run the hospital. Since the native doctors did not bother to wear masks, within twelve days, the doctors and their 250 patients all succumbed to the plague.⁵¹

Having suppressed the epidemic in March 1911, the government decided to capitalize on this success by holding an International Plague Conference in Shenyang - the first international medical conference held in China. The conference recommended that the government institutionalize the notification and management of infectious diseases across the country. As a result, in the following year, the newly established Republican government created the North Manchurian Plague Prevention Service [東三省防疫事務總管理處] with Doctor Wu as its director.⁵² Furthermore, in 1916, the government promulgated the *Regulation Concerning the Prevention of Infectious Diseases* [傳染病預防條例],

⁴⁸ Wu, *A Treatise on Pneumonic Plague*, 162-164.

⁴⁹ Wu, *Plague Fighter: The Autobiography of a Modern Chinese Physician*, 27.

⁵⁰ *Ibidem*, 21-23.

⁵¹ Christie, *Thirty Years in Moukden, 1883-1913*, 250.

⁵² For a detailed analysis, see Ma, "Wanguo Shuyi Yanjiuhui yu Dongsansheng Fangyi Shiwu Zonglichude Jianli."

making notification of cases of infectious diseases compulsory. It must be noted, however, that instead of presenting a formal definition of [*chuanranbing* 傳染病], the *Regulation* offers only an exclusive list of eight infectious diseases.⁵³

The Manchurian plague was the pivotal medical event that led the Chinese government to promulgate regulations for the prevention and treatment of infectious diseases. Even more importantly, the Manchurian plague challenged the traditional definition of febrile epidemics, the very concept of ‘contagion’, anti-plague measures, and clinical procedures for identifying plague cases. To sum up, the successful handling of the Manchurian plague validated the new category of ‘infectious diseases’ [*chuanranbing* 傳染病] in practice, thus transforming the relationship between the state, modern Western medicine, and TCM.

3.3. The Role of TCM in Treating and Preventing Epidemic Diseases

The ‘modernization’ of medicine in China is a story that interweaves battles for influence between the old and new professional elites, the debate on limits of state control, as well as (as shown in Section 3.2.) the struggle to maintain national sovereignty. In 1929, in the heat of China’s modernization drive, the National Board of Health [衛生部] unanimously passed a resolution to abolish the practice of traditional Chinese medicine. In response, proponents of TCM held a public demonstration in Shanghai and organized themselves into a national federation - in 1931 the Institute of National Medicine [中央國醫館] was established. Five years later, in 1936, the Institute started granting legally-binding licenses to practice Chinese medicine. Although the National Board of Health’s attempt to eradicate TCM ultimately failed, the Nationalist government was able to require doctors of Chinese medicine to study Western medicine in order to promote ‘scientification’ [科學化] of their practice.⁵⁴

The Chinese Communist Party (CCP) approached the issue from a different angle – since the 1950s, the Party has been pushing for a cross-fertilization of Chinese and Western medicine. In Mao’s own words:

把中醫中藥的知識和西醫西藥的知識結合起來，創造中國統一的新醫學新藥學。⁵⁵

[We need to] merge Traditional Chinese Medicine with Western Medicine to create an integrated New Medicine and New Pharmacy in China.

⁵³ Liu, “Minguo Shiqi Sanbu Zhongyaode Chuanranbing Fangzhi Fagui,” 45.

⁵⁴ Andrews, *The Making of Modern Chinese Medicine*, 4.

⁵⁵ As cited in Chen, “Guanyu ‘Zhongxiyi Jiehe’ Jiben Gainiande Renshi,” 621.

This drive to create an ‘integrative Chinese-Western medicine’ (IM) [中西醫結合醫學] proceeded as follows.⁵⁶ In the early 1950s, the government attempted to establish control over 450,000 TCM practitioners across the country, teaching them the rudiments of modern medicine and encouraging to work alongside western medicine practitioners.⁵⁷ From the mid-1950s to the mid-1960s, the government required doctors of Western medicine to study Chinese medicine, with the goal of creating a new medicine that would combine the best of Chinese and Western medical cultures - during this period, about 4000 doctors of Western medicine were trained in TCM.⁵⁸ In the 1980s, the institutionalization of integrative medicine has been propelled to the next level through the establishment of the State Administration of Traditional Chinese Medicine [國家中醫藥管理局], a government agency which regulates all TCM clinical services and provides guiding principles on research and education in the realm of TCM and IM. According to government data, as of 2020, 732 IM hospitals and 4426 TCM hospitals operated across the country, while 86.7% of all hospitals in China had dedicated TCM departments. As for education, 44 TCM colleges and universities produced 211,303 graduates.⁵⁹

Let us now consider the role of TCM in treating and preventing epidemic diseases. During the Republican era (1912-1949), although hardly a part of the government healthcare system, TCM practitioners actively participated in treatment and prevention of epidemics. In 1917-1918, during the Suiyuan Plague [綏遠鼠疫], TCM practitioners led by Cao Xunxuan [曹巽軒] and Yang Haoru [楊浩如] were sent to Datong to coordinate the containment and mitigation effort with Western doctors as well as dispense herbal medicines to patients. The following year, during an outbreak of cholera in Langfang [廊坊], the Beiyang government dispatched an anti-epidemic team [防疫隊] led by Yang Haoru, Kong Bohua [孔伯華], and Zhang Juren [張菊人] to the Langfang area to treat cholera patients.⁶⁰ Interestingly, as Yang Haoru recorded in his memoir, at that time many in the government still believed that ‘the Chinese medicine treatment was superior to the western medicine preventive measures’.⁶¹ TCM doctors’ learning experiences during the above two epidemics were later compiled into a book, *The*

⁵⁶ The very concept of ‘integrative medicine’ (IM) is a tricky one. While some definitions emphasize the integration of indigenous metaphysical medical principles, others focus on the holistic aspect of traditional Chinese medicine (TCM), that is the body as an organic whole and its relationship with the outer world. In a thought-provoking study on factors affecting definitions of IM, Zhang et al. identify four different approaches to IM. The first approach favors the creation of an entirely ‘new medicine’ by blending the theories and practices of Western Medicine (WM) and TCM. The second approach emphasizes the need for integrative practitioners to understand both TCM and WM to give patients the best treatment to relieve their suffering. The third approach argues in favor of utilizing current technology with an overarching goal of improving TCM, while following the TCM metaphysical principles. The fourth approach advocates the westernization of TCM, that is, to study TCM mechanisms to enhance and expand the scope of a given area of specialty in Western Medicine. Interestingly, as shown in the study, the interviewees were more likely to define IM in line with the second approach, that is in a pragmatic manner (Zhang et al., “Factors Affecting Definitions of and Approaches to Integrative Medicine,” 4-5).

⁵⁷ Croizier, “Traditional Medicine in Communist China: Science, Communism and Cultural Nationalism”, 1-27.

⁵⁸ Chen and Hao, “The Integration of Traditional Medicine and Western Medicine,” 230.

⁵⁹ Guojia Zhongyiyao Guanliju, *2020 Nian Zhongyiyao Shiye Fazhan Tongji Tiyao Baogao*.

⁶⁰ Zhao et al., “Minguo Shiqi Beijing Zhongyi zai Kangyizhongde Lishi Gongxian,” 6856.

⁶¹ Ibid.

Treatment and Analysis of Eight Main Infectious Diseases [傳染病八種證治晰疑], so that the concept of ‘infectious diseases’ made its way into TCM.⁶²

Turning now to the role of TCM in treating and preventing COVID-19. In the *National COVID-19 Diagnosis and Treatment Guideline* [新型冠狀病毒肺炎診療方案], in a section devoted to TCM treatment, COVID-19 is associated with a ‘pestilence’ [yi 疫] category of disease and thought to be caused by a ‘deviant qi’ [liqi 戾氣].⁶³ In the *Guideline*, healthcare practitioners are encouraged to offer IM treatments for COVID-19 patients, regardless of the disease status (suspected or confirmed) and its clinical classification (mild, moderate, severe or critical). Among recommended TCM treatments are three Chinese patent medicines (Jinhua Qinggan granules, Lianhua Qingwen granules and Xuebijing injection) and three formulas (Qingfei Paidu, Huashi Baidu and Xuanfei Baidu decoctions).⁶⁴

During the Wuhan lockdown, a total of 4,900 TCM practitioners, accounting for about 13% of the total number of medical personnel, worked in Hubei province for up to 100 days. Among the patients diagnosed with COVID-19, 90.6% used some form of Chinese herbal medicine - a considerable increase compared with 40-60% of total SARS patients in 2003.⁶⁵ Under the guidance of the Chinese Medicine Treatment Expert Group [中醫疫病防治專家組] (CMTEG), TCM practitioners were sent to Wuhan to provide TCM services in the infectious disease wards of WM, IM, and temporary shelter hospitals [方艙醫院]. As explained by Dr Zhang Boli [張伯禮] (the CMTEG member), within the framework of IM, TCM practitioners oversaw the use of Chinese herbal medicine to treat mild and moderate cases and participated in the IM treatment of severe and critical cases.⁶⁶

Lastly, a brief discussion of the potential role of TCM in treating post COVID-19 syndrome (also known as ‘long COVID’ [新冠長期症狀]) is merited. According to the WHO, long COVID occurs in individuals with a history of SARS-CoV-2 infection, usually three months from the onset of COVID-19. Common symptoms include fatigue, shortness of breath, muscle aches, loss of smell, and problems with memory and concentration (so-called ‘brain fog’).⁶⁷ Long COVID’s cause remains unclear and there is no one-off remedy to treat the diverse symptoms. While the typical approach in Western countries has been to rely on specific remedies to address each symptom, TCM appears to improve

⁶² The book, first published in 1918, includes pathogenesis, diagnosis and treatment of the following infectious diseases: 1) plague [鼠疫], 2) smallpox [天花], 3) typhus fever [傷寒], 4) measles [斑疹], 5) dysentery [赤痢], 6) diphtheria [白喉], 7) scarlet fever [猩紅熱], and 8) cholera [霍亂].

⁶³ Guojia Weisheng Jiankang Weiyuanhui, *Xinxingguanzhuangbingdufeiyuan Zhenliao Fang’an*, 20.

⁶⁴ Lyu et al. “Traditional Chinese Medicine in COVID-19”, 3338.

⁶⁵ Ochs and Garran, “The Role of Chinese Medicine in Treating and Preventing COVID-19 in Hubei, China,” 14; and Leung, “The Efficacy of Chinese Medicine for SARS: A Review of Chinese Publications After the Crisis,” 575.

⁶⁶ Gao et al., “Zhang Boli: Zhongyiyue zai Fangzhi Xinxing Guanzhuang Bingdu Feiyuan Quanguocheng Fahui Zuoyong,” 122.

⁶⁷ WHO, *Post COVID-19 Condition (Long COVID)*.

circumstances for patients experiencing a range of conditions, including cough, fatigue, shortness of breath, and some gastrointestinal symptoms such as post-meal fullness and loose stool.⁶⁸

3.4. China's COVID-19 Containment and Mitigation Strategy

A white paper on China's COVID-19 experience released by the State Council in June 2020 describes the anti-pandemic effort as an 'all-out people's war' fought under the leadership of the CCP.⁶⁹ The first major outbreak of COVID-19 occurred in Wuhan, shortly after it hosted the Military World Games in November 2019. Although between early December 2019 and mid-January 2020 the early warning system (mainly due to mismanagement of the local authorities) failed to do its job, the lockdown of Wuhan was announced on January 23rd and the entire country switched to emergency mode to combat the epidemic.⁷⁰ The remainder of this section provides an account of the full range of pandemic containment and mitigation measures adopted by the Chinese government during the Wuhan lockdown, as well as the rationale behind the dynamic zero-COVID policy [動態清零总方针].

Broadly speaking, the Chinese government's containment and mitigation strategy during the Wuhan lockdown can be treated under five headings: 1) the top-down leadership mechanism, 2) the government/party personnel mobilization, 3) resource mobilization (including the PLA's contribution), 4) community lockdown measures, and 5) health securitization. The aforementioned features of the strategy are dealt with in detail below.

Although local governments have considerable autonomy in local socio-economic affairs (including fiscal policy), strong CCP leadership (aka the Leninist rule of political command) remains the paramount principle of Chinese governance. Consequently, during emergencies, it is the central authority that steers the behaviour of local governments in a top-down manner. On January 20, the State Council launched the Joint Prevention and Control Mechanism (JPCM) [國務院聯防聯控工作機制]. Led by the National Health Commission [國家衛生健康委員會], the JPCM was established with an aim of achieving inter-agency coordination of anti-pandemic efforts; it has also been in charge of issuing technical guidelines and briefing the public about the progress of epidemic prevention and control measures.⁷¹ On January 26, the first meeting of a central decision-making body in charge of China's response to the pandemic - the Central Leading Group for COVID-19 Prevention and Control (CLG) [中央應對新型冠狀病毒肺炎疫情工作領導小組] - was held chaired by then Premier Li Keqiang. A Central Steering Group for COVID-19 Prevention and Control (CSG) [中央赴湖北等疫情严重地区指导组] was also formed to supervise the anti-pandemic campaign in Hubei Province – chaired by then Vice Premier Sun Chunlan,

⁶⁸ Zhong et al., "Effects of Chinese Medicine for COVID-19 Rehabilitation: A Multicenter Observational Study," 12. On Traditional Japanese Kampo Medicine [漢方医学] treatment of 'long COVID', see Ono et al. "Progress and Treatment of "Long COVID" in Non-hospitalized Patients: A Single-Center Retrospective Cohort Study."

⁶⁹ Guowuyuan Xinwen Bangongshi, *Kangji Xinguan Feiyan Yiqingde Zhongguo Xingdong*.

⁷⁰ Gu and Li, "Crippled Community Governance and Suppressed Scientific/Professional Communities," 162.

⁷¹ Zhongguo Waiwenju, "Guowuyuan Lianfanglianrong Gongzuo Jizhi."

the CSG was stationed in Hubei between January 27th and April 27th.⁷² The above central command structure was further replicated at the local government level, with local command headquarters for COVID-19 prevention and control established across the country. With the establishment of a clear command chain, the CCP turned to several well-established mechanisms (including inter-regional cadre transfers, fast-track promotions, and disciplinary penalties) to steer the government and party personnel through the crisis. It was reported that, as of May 2020, in Hubei Province alone more than 3000 cadres were referred for disciplinary action.⁷³

Turning now to resource mobilization. Article 4 of the PRC's *National Defense Mobilization Law* [國防動員法] states that 'national defense mobilization combines peacetime production with wartime production [平戰結合], civil with military [軍民結合], and embeds military within a civilian mobilization strategy [寓軍於民的方針]'.⁷⁴ Thus, it is not surprising that resource mobilization during the pandemic has been overseen by the CCP's Central Military Commission [中央軍事委員會] with a prominent role given to the People's Liberation Army (PLA). During the Wuhan lockdown, the Army deployed about 4000 military health workers and provided emergency support (medical equipment and supplies) to the city. By early February, 1400 military medical personnel were installed at the Huoshenshan Temporary Hospital [火神山醫院] and began receiving patients.⁷⁵ The PLA Joint Logistics Support Force [聯勤保障部隊] coordinated transport of military medics and critical medical supplies across all five theatre commands, while the Chinese defence industry switched to the production of PPE to reinforce supply chains.⁷⁶ To complement the PLA's efforts, large state-owned enterprises (SOEs) constructed two temporary shelter hospitals in charge of treating severe cases within less than two weeks.⁷⁷

In tandem with the PLA and SOEs' resource mobilization efforts, the government also launched an inter-provincial assistance mechanism [對口支援] - on February 7, each city/county in Hubei Province was paired with one (or two) of China's provinces/municipalities/autonomous regions (e.g., Xiaogan City was paired with Chongqing and Heilongjiang Province, Huanggang City was paired with Shandong and Henan Provinces). The aim of this operation was to support local governments in Hubei Province, improve patient care, and safeguard community wellbeing, largely via dispatching medical aid teams and equipment.⁷⁸ Per state media reports, as of March 14, China's 19 provinces/municipalities/autonom

⁷² Zhongguo Waiwenju, "Xiang Hubeideng Yiqing Yanzhong Diqu Zhidaozu."

⁷³ Xinlang Caijing, "Hubei 3000 Yu Dangyuan Ganbu Yin Yiqing Fangkong Shizhi Bei Chufen."

⁷⁴ Quanguo Renmin Daibiao Dahui, *Zhonghua Renmin Gongheguo Guofang Dongyuanfa*.

⁷⁵ Zhu et al. "Wuhan Huoshenshan Yijiao Jiefangjun Yiliaodui."

⁷⁶ Wuthnow, "Responding to the Epidemic in Wuhan: Insights into Chinese Military Logistics."

⁷⁷ He, Shi and Liu, "Crisis Governance, Chinese Style: Distinctive Features of China's Response to the COVID-19 Pandemic," 250.

⁷⁸ Zhongguo Gongchandang Xinwenwang, "Pandian: Duikou Zhiyuan Zheyiyue, 19 Shengfen Zuole Naxie Gongzuo?"

ous regions deployed 31,207 healthcare workers to the city of Wuhan and 7425 workers to 16 cities/counties in Hubei Province.⁷⁹

Regarding community lockdown measures, the government has relied on three central mechanisms: 1) a ‘sent-down’ of the CCP cadres, 2) the urban grid management system (UGMS), and 3) residential committees’ enforcement of citywide policies. To begin with, the implementation of a city-wide lockdown requires immense manpower. In response to this challenge, in Hubei Province alone, the CCP ‘sent down’ half a million of its members to support local governments in the implementation of residential lockdowns.⁸⁰ Next, the government has utilized the urban grid management system (UGMS) [社會網格化管理] to enforce lockdowns. Launched in many Chinese cities before the outbreak of the pandemic, the UGMS transcends urban administrative boundaries dividing cities into ‘grid cells’, with grid controllers [网格员] in charge of a wide range of community affairs including security and social services.⁸¹ Lastly, through residential committees [居民委員會], local governments ensured that citizens would comply with stay-at-home orders and contact tracing measures. According to the official statistics, nearly four million community workers from 650,000 residential committees across China were tasked with coordinating the grassroots-level pandemic response.⁸²

It is also worth noting that community mobilization in China has been underpinned by a sweeping war narrative - key terms often used by the government include ‘people’s war’ [人民戰爭], ‘total war’ [總體戰], and ‘battle of annihilation’ [殲滅戰], while pandemic-related documents issued by local command centres are often called ‘war-time directives’ [戰時管制的通告]. Such extensive use of a war narrative is a cultural legacy of the CCP’s armed struggle in the revolutionary era and is still widely used in civilian affairs to convey a strong sense of urgency.

Lastly, let us discuss briefly the issue of securitization of the COVID-19 pandemic. Governments across the globe tend to securitize their policy responses to the pandemic by framing it as an existential threat demanding extraordinary security measures. In China, two issues stand out in respect to health securitization. At the domestic level, the mandatory use of the health codes [防疫健康码], while of great help in COVID-19 contact tracing, tends to restrict people’s movements based on their COVID-19 status

⁷⁹ Xinhua Tongxunshe, “19 Shengfen Duikou Zhiyuan Hubei 16 Shizhou: Zhongzhi Chengcheng Huiju Jueshengzhili.”

⁸⁰ He, Shi and Liu, “Crisis Governance, Chinese Style: Distinctive Features of China’s Response to the COVID-19 Pandemic,” 252.

⁸¹ For a detailed analysis, see Hou and Cao, “Zhongguo Chengshi Wanggehua Guanli Yanjiu Huigu yu Qianzhan.”

⁸² As cited in Zhao and Wu, “Citizen-State Collaboration in Combating COVID-19 in China: Experiences and Lessons from the Perspective of Co-production,” 779. It must be noted, however, that the residential committees’ role in assisting the government in implementing numerous disease control measures has been a contentious issue, with residents accusing their *juweihui* of overstepping with arbitrary, excessive and heavy-handed measures (see, for example, Lianhe Zaobao, “Juweihui Cheng Shanghai Jiefeng Beiguoxia?”).

and the health risk they may pose.⁸³ The issue of forced quarantine for those returning from abroad is another example of the ongoing process of health securitization under the COVID-19 pandemic.

After subduing the initial COVID-19 outbreak in Wuhan, the Chinese government came up with a ‘dynamic zero-COVID policy’ (DZCP) [動態清零總方針] characterised by a strict regime of residential lockdowns and business shutdowns, close contact tracing, mass nucleic acid testing, and stringent border controls. It is important to understand that the rationale for the DZCP is anchored in the reality of China’s public health system. The country has 3.1 nurses per one thousand people (compared with 14.2 in Germany and 11.9 in Japan) and 3.6 intensive care beds per one hundred thousand people (comparing with 29.2 in Germany and 7.3 in Japan).⁸⁴ The delay in vaccine booster shot distribution appears to be another reason behind the DZCP. As of June 2022, just half of citizens aged 80 years and older had received both doses of CoronaVac and/or Sinopharm vaccines, and only 20% had received a booster dose.⁸⁵ Furthermore, regarding vaccine effectiveness, research in Hong-Kong has shown that, for adults aged 60 years or older, mRNA vaccines (here BioNTech-Fosun Pharma’s BNT162b2) proved significantly more effective than inactivated vaccines (here Sinovac’s CoronaVac) after only two doses. But the study has also shown that there is a very good level of protection for three doses of either vaccine, thus concluding that it is crucial to provide three doses (that is, two doses plus the booster shot) of CoronaVac and/or Sinopharm vaccines to adults older than 60 years or others in high-risk groups.⁸⁶

While there is little doubt that the DZCP protected the most vulnerable segments of the population from COVID-19 waves, policies such as frequent mass testing and draconian quarantine measures greatly disrupted people’s lives and work, as well as increased financial burden on local governments. On the economic front, the complete shutdown of Shanghai, Shenzhen, and Dongguan in Guangdong Province, as well as auto production centres drove home the reality that the DZCP might excessively harm the economy and tarnish Beijing’s reputation for effective economic policymaking. In November 2022, the first signs of loosening up the DZCP appeared. It was, however, the Urumqi apartment fire on November 24 and subsequent nationwide anti-lockdown protests that forced local governments to adjust their lockdown policies. Facing conflicting implementation at the local government level, the JPCM released a non-binding circular [通知] known as the *Ten New Points* [新十條] which lifted health code requirements for domestic cross-regional travels and scrapped negative nucleic test results and health code requirements for entering most public places. The circular also clarified that mild COVID-19 cases

⁸³ Deng and Gu, “Cong Fangyi Jiankangma Tan Gongmin Geren Xinxide Liyong yu Baohu.” For an excellent analysis of the role of digital technologies in the fight against COVID-19 from a philosophical standpoint, see Rosker, “COVID-19, Digital Tracking Control and Chinese Cosmototechnology.”

⁸⁴ <https://data.worldbank.org/indicator/SH.MED.NUMW.P3>; <https://www.statista.com/chart/21105/number-of-critical-care-beds-per-100000-inhabitants/>.

⁸⁵ Burki, “Dynamic Zero COVID Policy in the Fight against COVID.”

⁸⁶ McMenamin et al., “Vaccine Effectiveness of One, Two, and Three Doses of BNT162b2 and CoronaVac against COVID-19 in Hong Kong.”

patients were allowed to quarantine at home.⁸⁷ Although the JPCM's intention was to gradually lift COVID-19 restrictions, local officials interpreted the circular as a watershed moment and rushed to open-up local economies.

On the whole, a summary of the above evidence permits a tentative conclusion that, when it comes to a nationwide top-down crisis management in the presence of complex relationships between central and local governments, it is much easier to initiate a large-scale mobilization campaign than to bring it to a safe end.

3.5. Confucian Social Ethics in the Time of the Pandemic

In an article published in the *International Journal of Chinese Medicine and Comparative Philosophy*, Fan Ruiping [范瑞平] discusses the ethical dimension of the pandemic, contrasting Confucian principles of social harmony [和諧主義], virtue ethics [美德主義], and familism [家庭主義] with the Western concepts of scientific determinism [科學主義], principlism [原則主義], and contractualism [契約主義]. According to Fan, the above set of Confucian principles has enabled East Asian societies to effectively combat the pandemic. It is noteworthy that the author uses the concept of Confucian familism as a foundational virtue of *tianxia* social order [家庭主義天下觀], placing individuals' moral responsibilities and their duties towards the society (that is, their 'family obligations') in the centre of the decision-making processes under the COVID-19 pandemic.⁸⁸

The classical Confucian concept of 'humaneness' [*ren* 仁] stresses empathy, mutual respect and a sense of consideration for others. As noted by Li Zehou (李澤厚; 1930-2021 CE), classical Confucianism attaches special importance to the cultivation of human emotions [人性情感] understood as the essence of *ren*:

[孔學] 強調“親子之情”（孝）作為最後實在的倫常關係以建立“人”-“仁”的根本，并由親子，君臣，兄弟，夫婦，朋友“五倫”關係，輻射交識而組成和構建各種社會性感情作為“本體”所在。強調培植人性情感的教育，以之作為社會根本。

⁸⁹

[Classical Confucianism] emphasizes that the emotion of parent-child love (filial piety) is the very substance of human relationships and the foundation for constructing humanness [*ren*]. The five human relations of love between parent and child, duty between ruler and subject, precedence of the old over the young, distinction between husband and wife, and faithfulness between friends interweave to generate various forms of social emotions which

⁸⁷ Guojia Weisheng Jiankang Weiyuanhui, *Guanyu Jinyibu Youhua Shiluo Xinguanshiyanyiqing Fangkong Cuoshide Tongzhi*.

⁸⁸ Fan, "Dayi Dangqian: Suzhu Rujia Wenmingde Luni Ziyuan," 100-105.

⁸⁹ Li, "Lunyu Jindu Qianyan," 32.

constitute the substance [of human life]. [Classical Confucianism] considers cultivation of human nature and education [to be] a foundation of society.

With [*ren* 仁] as a foundational concept of society, moral emotions express themselves in social actions that harmonize interpersonal relations and maintain social order. Morality is thus rooted in the harmonious interplay among individuals embedded in different social roles – an ethical viewpoint Li Zehou identified as a ‘relational virtue ethics’ [關係主義的美德倫理]:

李澤厚：追求美德倫理，中西是共同的。但中國是家國相連，由家及國，情理結構。

劉悅笛：這就是那誰講的“公德”與“私德”，梁啟超講的！ [...]

李澤厚：這就是“關係主義”！西方則家國分離，公私區分，理性之上。

劉悅笛：對。

李澤厚：中國重和諧，西方講正義。⁹⁰

Li Zehou: Striving towards virtue, that is what Chinese and Western [philosophies] have in common. But in China, [virtue ethics of an individual] is inseparable from family, and by extension from the state; it is [also] an emotio-rational structure.

Liu Yuedi: Well, that sounds like Liang Qichao’s distinction between ‘public virtue’ and ‘personal virtue’!

Li Zehou: And that is what I call a ‘relational [virtue ethics]’! The West, on the other hand, separates family from the state, draws a distinction between the public [sphere] and the private [sphere]; it [also] holds reason above all.

Liu Yuedi: Yes, that’s correct.

Li Zehou: In China, [we] attach special importance to [the concept of] social harmony, while in the West, the main focus is on [the concept of] justice.

It follows from the above that the ultimate goal of relational virtue ethics is social harmony [和諧] which can be achieved through both ‘emotional’ [情] and ‘rational’ [理] understandings of a given situation.

Another basic premise of Li’s moral theory is that Chinese tradition features a ‘one-world view’ [一個世界觀].⁹¹ In a study devoted to Confucian ‘deep structures’ [深層結構], Li observes that, contrary to the Abrahamic tradition and its emphasis on the transcendental realm, in Confucianism there is only one realm from which the sense of human existence can be derived, and it is the historical human world:

⁹⁰ Li and Liu, “Cong ‘Qingbenti’ Fansi Zhengzhi Zhexue,” 207.

⁹¹ For a detailed analysis of the ‘one-world view’ concept, see Xu, “Li Zehou Shijian Meixuede Qingbenti Lilun,” 59-60.

儒家不斷發展著這種“一個世界觀”的基本觀念，以此際人生為目標，不力求來世的幸福，不希冀純靈的拯救。而所謂“此際人生”又不指一己個人，而是指群體——自家庭，國家以至“天下”（人類）。由於儒家的“一個世界觀”，人們更重視人際關係，人世情感，感傷與生死無常，把生的意義寄託和歸宿在人間 [...] ⁹²

[Throughout centuries] Confucianism has developed a ‘one-world view’; it takes the human world as its goal; it does not strive for happiness in the afterlife; it does not believe in the rescue of souls. It focuses on human existence here and now; and [for Confucianism] ‘human existence’ means not only an individual’s life, but also [an individual’s role] within family, within the state, and as a part of *tianxia* (mankind). Because of the ‘one-world view’, [Chinese] people attach special importance to human relationships, human emotions, and the impermanence of life; [for them] the meaning of life is confined to the human world.

Within the one-world view, the existence of human beings is defined by social relationships, which are emotional in nature. While social responsibilities, obligations, and expectations are different for each individual, social agency is conferred on human beings as a social collective. In times of crisis, such as the COVID-19 pandemic, relational virtue ethics-based societies seem to be well suited to engage with a wide range of intensive non-pharmaceutical interventions (NPIs), such as the use of face-masks, physical distancing, widespread testing, contact tracing, and quarantine of infected individuals.

The nature of the relationship between an individual and society is one of the foundational issues in modern Confucian social ethics. While Western culture is based on the idea of a free and abstract individual, the Confucian social order is constructed upon a network of relations – thus each individual is denoted as both a ‘small self’ [小我] and a ‘big self’ [大我]. In an essay published in 1904, *My View on Life and Death*, Liang Qichao [梁啟超; 1873-1929 CE] discusses the ‘small self – big self’ dyad:

吾輩皆死，吾輩皆不死。死者，吾輩之個體也；不死者，吾輩之群體也 [...] 我之家不死，故我不死；我之國不死，故我不死；我之群體不死，故我不死。[...] 我有大我，有小我；[...] 何謂大我？我之群體是也。何謂小我？我之個體是也。 ⁹³

I will die, and yet not all of me will die. As an individual, I will die; but as a social being, not all of me will die [...] Since my family continues, not all of me is dead; since my country exists, not all of me is dead; [therefore] since my existence as a social being

⁹² Li, “Ruxuede Shenceng Jiegou.” A distinction between ‘deep structure’ (深層結構) and ‘surface structure’ (淺層結構) has been proposed by the Taiwanese psychologist Hwang Kwang-Kuo [黃光國; 1945-2023]. Hwang analyzes Confucian ethical system in terms of the deep structure of ‘humanness - righteousness - propriety’ [仁 · 義 · 禮]. The relationships among such Chinese concepts as [*renqing* 人情], [*guanxi* 關係], and [*mianzi* 面子] are regarded as the surface structure, which is derived from the ‘humanness - righteousness - propriety’ triad (Hwang, “The Deep Structure of Confucianism: A Social Psychological Approach”).

⁹³ 梁啟超全集 · 第3冊 · 第5卷, 1373.

continues, not all of me is dead [...] I have a ‘big self’ and a ‘small self’ ; [...] What does the ‘big self’ mean? It is me as a social being. What does the ‘small self’ mean? It is me as an individual.

The above distinction between ‘an individual/small self’ [個體/小我] and ‘a social being/big self’ [群體/大我] is examined within the individual – family – state relationship framework. Synthesizing Social Darwinism and Confucianism, Liang contrasts the mortality of ‘small self’ with the durability of ‘big self’ understood as a set of social roles.

The ‘small self – big self’ dyad became popular discourse among the May Fourth Movement liberal intellectuals, especially Hu Shi [胡適; 1891-1962 CE].⁹⁴ Perhaps unsurprisingly, the ‘small self – big self’ discourse also found its way into Marxist writings in the form of the critique of individualism as bourgeois ideology. As early as 1920s, the critique of bourgeois individualism (equated with the ‘small self’) ushered in the rhetoric of socialist collectivism (equated with the ‘big self’), so that the ‘small self – big self’ dyad became entrenched in the Chinese Marxism ethical discourse, including its recent incarnation – the core socialist values [社會主義核心價值觀].⁹⁵ To give but one example, in an article published in the *Marxist Research* [馬克思主義研究], Luo identifies ‘small self’ – ‘big self’ interactions as an essential issue in the Party’s ‘value guidance’ [價值引領]. To strengthen value guidance among the country’s youth, the author submits that everyone shall strive to harmonize their societal values with individual values, coordinate collective interest with individual interest, and make the nation’s dream a part of personal ideas.⁹⁶

Interestingly, even a cursory glance at the content of the Chinese internet reveals that the concepts of ‘small-self’ and ‘big-self’ became a handy propaganda tool during the COVID-19 pandemic. Some of the most common expressions used in relation to the pandemic include: 1) calibrate the relationship between an individual and society, between the ‘small self’ and ‘big self’ [調整好個人與社會，小我與大我的關係] (Communication University of China’s webpage), 2) consciously blend the ‘small self’ into ‘big self’ [自覺吧 “小我” 融入 “大我”] (*PLA Daily*’s webpage), 3) teach (students) how to incorporate the ‘small self’ into ‘big self’ [學習他們將小我融於大我] (SanQuan Medical College Party’s blog), 4) leave your home to look after your country, bring together ‘small selves’ to form a ‘big

⁹⁴ For a detailed analysis of Hu Shi’s application of ‘small self – big self’ discourse, see Xu, “Dawo Xiaojie: Xiandai Zhongguo Gerenzhuyi Sichao de Bianqian.”

⁹⁵ For a discussion on early Chinese Marxist critique of individualism, see Liu, “Translingual Practice: The Discourse of Individualism between China and the West,” 184-186.

⁹⁶ Luo, “Xiaowo yu Dawo: Jiazhi Yinlingde Genben Mondai,”

self' [舍小家顧大家，匯小我成大我] (Xinhua's editorial), 5) sacrifice 'small self' to accomplish 'big self' [奉獻小我，成就大我] (Wuhai City official webpage).⁹⁷

Evaluating the role of ideational structures in the responses to the pandemic is an inherently difficult task. However, given the above analysis, it is tempting to conclude that a more 'collectivist' response to the COVID-19 pandemic in China has been contingent on a set of Confucian 'deep structures', such as familism (and its role in upholding social order), relational virtue ethics and the one-world view, as well as the incorporation of the 'small self - big self' dyad into the 'core socialist values' discourse. In other words, it appears that the above ideational structures continue to determine individual choices and preferences, and may partly explain the differences in the pandemic response between East Asian and Western societies.

4. CHINA'S CRISIS MANAGEMENT DURING THE COVID-19: A FRAMEWORK FOR ANALYSIS

As the COVID-19 pandemic progresses, it has become clear that its scope and impact necessitate a comprehensive analytical framework that can help policymakers minimize trade-offs between public health, the economy, and environmental protection. In this section, I propose a systems theory-based conceptual framework to study the complexity of China's crisis management during the COVID-19 pandemic.

To begin with, let us introduce a typology of systems offered by Mario Bunge. Bunge classifies systems into three broad types: 1) material (further subdivided into natural [e.g., a coral reef], social [e.g., a family], and technical [e.g., a TV network]), 2) conceptual (defined as one composed of ideas or concepts [e.g., a scientific theory]), and 3) semiotic (defined as one composed of signs [e.g., a language]).⁹⁸ Next, I propose to approach the issue under discussion through the lens of socio-ecological systems (SES). In the literature, the term is generally understood to mean complex adaptive systems where social and biophysical agents are interacting at multiple temporal and spatial scales and where multiple forms of governance influence resource users and resource systems.⁹⁹

Consider, for example, the fishing industry. Commercial fishing is an industry that aims at the delivery of fish and other seafood products for human consumption (→ resource users). The fishing industry, however, depends heavily on dynamic, living fish stocks (→ resource system). Fishing stocks

⁹⁷ <http://www.cuc.edu.cn/2020/0309/c1761a165746/pagem.htm>; http://www.81.cn/jfjbmap/content/2020-05/25/content_262192.htm; <https://www.sqmc.edu.cn/2020/0427/c3157a74903/pagem.htm>; http://www.xinhuanet.com/politics/2020-05/10/c_1125965562.htm; <http://1.31.83.179:8980/wsj/index/gzdt30/800182/index.html> (all URLs have been last accessed on June 7, 2023).

⁹⁸ Bunge, *Emergence and Convergence*, 33-34; and Bunge, "Clarifying Some Misunderstandings", 372. The analytical framework proposed in this paper is based on the theoretical approach called 'emergentist systemism' which I have developed in my previous work (Tanaka, "Reconceptualizing Regional Order").

⁹⁹ See, for example, Janssen and Ostrom, "Governing Social-Ecological Systems", 1468-1472. On the development of the concept, see McGinnis and Ostrom, "Social-Ecological System Framework".

may be renewable, but they are finite. To ensure that the fishing industry is sustainable and does not threaten the size of the fish population, governments or/and supra-national bodies design fisheries policies (→ governance system). A sustainable fisheries policy is expected not only to regulate fishing activities but also to protect marine biodiversity (→ a given system's environment). From the above it is clear that a given socio-ecological system may be modelled as comprising the following elements: resource users (=social agents), resource systems, governance systems, and system's environment.

We are now ready for the next step. To get a sound grasp of the many interconnected aspects of China's crisis management during the COVID-19 pandemic, I propose to subdivide the socio-ecological system into five analytical domains: 1) ecological, 2) socio-ecological, 3) socio-economic, 4) socio-medical, and 5) socio-institutional. The ecological domain focuses mainly on ecological countermeasures for preventing zoonotic disease outbreaks, including an ecological restoration policy in the realm of agriculture and natural resource management. It also addresses the issue of ecological limits to economic growth. The socio-ecological domain, on the other hand, addresses policy-related issues of captive breeding of wild animals, wildlife consumption, pandemic-related food insecurity, as well as pandemic-related trade-offs in the area of environmental protection and low-carbon development. The socio-economic domain covers the economic impact of COVID-19. The main issues here include the incentive mechanisms that boost economies battered by the pandemic (e.g., loan compensation funds, investment in infrastructure, measures for boosting consumption, furlough schemes) as well as the management of supply chain disruptions. The socio-medical domain encompasses medical measures in the realm of epidemic prevention and treatment, including residential lockdowns and mass testing, health workers distribution across the country, IM strategy for COVID-19 treatment (including the promotion of TCM in the treatment), as well as vaccine development. Lastly, the socio-institutional domain comprises legal and institutional frameworks dealing with such themes as leadership mechanisms, personnel/cadre mobilization, the PLA and SEOs' participation in anti-pandemic efforts, the implementation of residential lockdown measures, as well as the securitization of health.

Let us now look at the relationship between socio-ecological, conceptual and semiotic systems. Conceptual systems (expressed through various semiotic systems) are an integral (though not material) part of the social world and, as such, play an important role in social explanation. Consequently, China's crisis management during COVID-19 cannot be fully explained without referring to its conceptual space (that is, the ideas possessed by social agents) and its semiotic space (that is, language as a means of communication). As has been shown in Sections 3.3., 3.4., and 3.5. of this study, a set of ideas underpinning the discourse of dynamic zero-COVID policy comprises 1) the Marxist-Leninist ideals that underlie the Chinese government's crisis management, 2) the Confucian social ethics that permeate Chinese society and have been selectively embraced by the CCP, and 3) the public health concept of 'integrative Chinese-Western medicine'. Lastly, to fully integrate conceptual and semiotic systems into social analysis, the concept of 'social practices' needs to be introduced. While discourse refers to

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practices of meaning-making at the linguistic level, social practices can be defined as social agents' meaningful actions.¹⁰⁰

Tying together the concepts introduced thus far, Figure 1 outlines a systems-theory based framework for the study of China's crisis management during COVID-19.

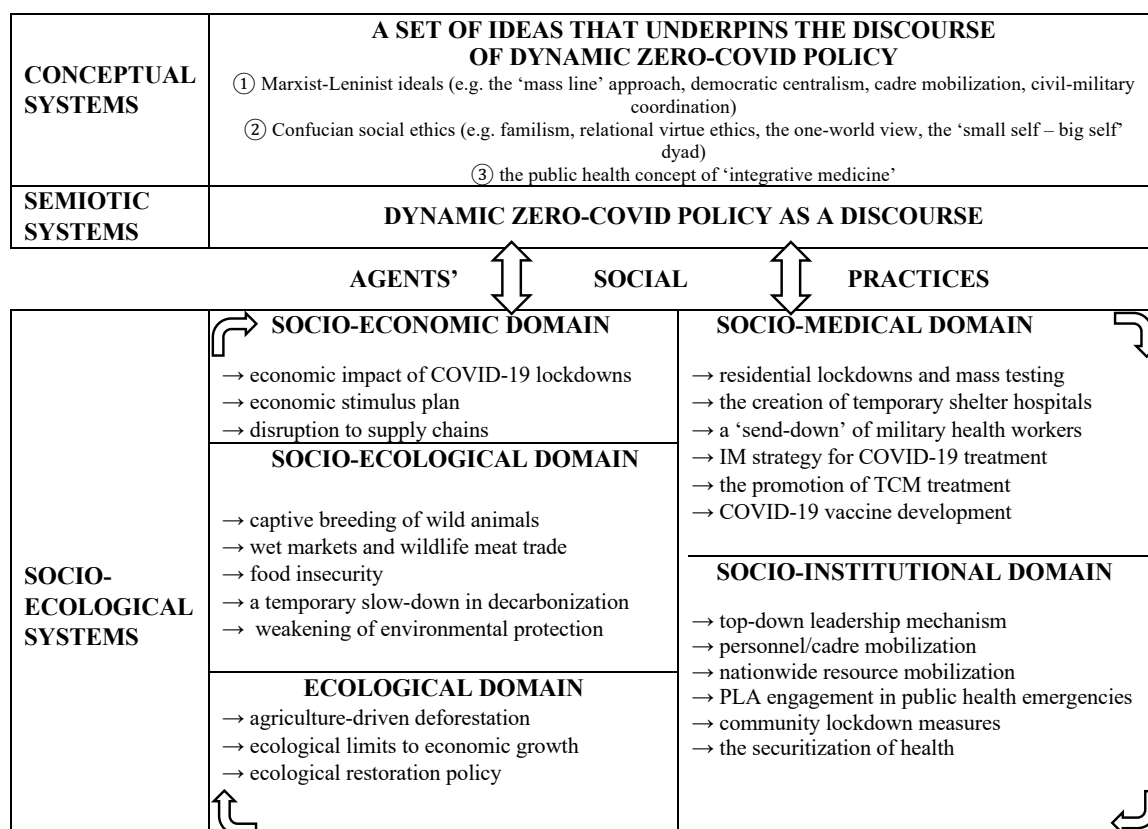


Figure 1. China's Crisis Management during the COVID-19 Pandemic: A Framework for Analysis

In this section, I have proposed a systems theory-based framework to study the complexity of China's crisis management during the COVID-19 pandemic founding the analysis on two premises: 1) the issue at hand is approached through the lens of socio-ecological systems, and 2) conceptual and semiotic systems are fully integrated into social analysis. Throughout this paper, I have examined China's COVID-19 crisis management focusing on the interplay of public health measures (IM strategy for COVID-19 treatment), institutional designs (containment and mitigation measures during the Wuhan lockdown), and ideational underpinning of anti-pandemic policies (the Marxist-Leninist/Confucian/IM conceptual space). I have also discussed premodern Chinese medical thinking on selected epidemic diseases and TCM's incorporation of the concept of [*chuanranbing*]. This was used to reveal how TCM nosology has evolved and persisted to this day to become a component of IM strategy for COVID-19 with TCM formulas incorporated into China's COVID-19 standard therapy.

¹⁰⁰ For a detailed analysis, see Sum and Jessop, *Towards a Cultural Political Economy*, 97-98.

From a systemic point of view, in this study I have shown how the Marxist-Leninist/Confucian/IM conceptual space has enabled and constrained the Chinese government's actions in the socio-medical and socio-institutional domains. I have also touched upon the socio-ecological drivers of zoonotic transmissions - effective handling of this complex issue might help us avert the next global crisis. There is little doubt that the urgency of the topic justifies continuing discussion and further research. For example, more work is needed to elucidate how the official discourse of DZCP has diffused across the system and how it has been adopted, adjusted and altered in the course of implementation at provincial, county and municipal levels. It would also be helpful to capture real-time experiences and coping mechanisms of key stakeholders to get a more nuanced picture of multi-stakeholders interactions in a time of crisis. Lastly, a shift in understanding of interdisciplinarity is needed so that the ways in which different disciplines operationalize their object of inquiry (here the COVID-19 pandemic) are aligned to tackle the diverse aspects of the current pandemic in a science-based way.

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