Moderator's introduction to the workshop

"The environmental conditions of a country are the most powerful evidence of its government's legacy." This is one of Donald Hughes' arguments in his book *What is Environmental History*, in which he specially quoted relevant sayings of Mencius, the ancient Chinese philosopher who was second only to Confucius. Views of the past can be applied to the present, and those in the West can be used as a reference in the East. Ever since the drawing of boundaries between modern nation-states and their social transitions, especially after more and more countries and regions entered industrial civilization, the environment has gone through rapid and radical changes as human beings have intensified their utilization and exploitation of natural resources, and human movement, transport and logistics have increased. In this process, the responsibility for environmental management, which had been shouldered by the individual, family, community or local government, was gradually taken up by the national government in a centralized and specialized way as a part of its national responsibility. By doing so, the state has become a larger and more crucial player in remolding the ecological and social order through environmental governance.

Regarding the current environmental crisis, the experts at the workshop expressed their belief that China, with a history of 5,000 years of civilization, originally had an agricultural production system that was in harmony with nature. Then, during the 1970s and 1980s, the so-called "green revolution," which started in the West and focused on fertilizers, pesticides, agricultural machinery and the hybridization of crop seeds, was introduced into China. This was a kind of industrialized agriculture, which, in the process of the "miracle" of increasing grain yield, caused irreversible damage to the soil and environment in which humans and other species lived. Establishing an ecological civilization and achieving sustainable development requires people to reflect on

this industrialized agricultural method. This is a responsibility that people nowadays cannot avoid.

The earth's current environment mainly faces three fundamental pressures: over-population, market-based competitive development among various countries, and the low-quality concepts and consumption patterns of human beings. In this regard, the fundamental reasons for poor environmental protection lie in the inability to form internationally unified rigid regulation, the common psychology of expecting to get through crises by sheer luck, and the disconnect between the promotion of humanity and environmental conditions. When it comes to the identification of specific countermeasures, there are differences between passive and active, rigid and flexible, external and internal.

There is also a view that the emergence and evolution of human civilization depends on two basic conditions: natural conditions and knowledge conditions. The destruction of the former has led to new trends of thought, research, countermeasures and actions for environmental protection and sustainable development; the misuse of the latter, in particular the misuse and abuse of scientific and technological knowledge, has not attracted enough attention. At present, scientific and technological risks are becoming more and more serious, and there are many serious loopholes in human security protection measures. Humankind is facing unprecedented challenges. Only by launching a new scientific and technological revolution, industrial revolution, distribution revolution and national governance revolution can we effectively deal with these challenges.

Seen from a country's practice of dealing with environmental crises, environmental governance in the US has gone through three important stages—that is, from the founding of the nation to the era of progressivism being stage one, and from the period of the rise of progressive ideas to the 1960s being stage two; it is now in the third

stage. During these three stages, the US moved from the early age of laissez-faire to the second stage with the establishment of the idea of the "American commons," and then to the third stage, in which the management of citizen behavior in the form of national legislation was strengthened. The core driving force behind the three-stage transition was the changing environment and consequently changing environmental knowledge rather than the wishful thinking of a certain power group or the will of several groups. The UK, as the country that pioneered the industrial civilization, took the lead in enjoying its achievements, savoring its bitter fruits, and embarking on a path of modern environmental governance. Over the past 100 years, the British environmental governance strategy has undergone a transformation from independent governance to full cooperation. This change shows that, on the issue of environmental governance, man-made systems, concepts, and even civilization itself are breaking through prejudices and accumulated grievances and are undergoing a fundamental transformation. As a result, a new type of civilization different from industrial civilization is developing and growing in the countries where industrial civilization first took the lead.

Some of the experts at the workshop also analyzed the concept of the environmental management state — that is, a modern country that emphasizes the responsibility of controlling and managing nature, resources and related behaviors, and uses its capital and professional knowledge to adjust or establish a new ecological and social order, thereby defining its relationship with its citizens, society and with other countries. There is a view that, in the construction of ecological civilization, central high-level departments should consider the policy preferences of local leaders, and ensure the interactions between "give and take" in the process of policy agenda setting. However, there is also another point of view, namely, that the government is not omnipotent. In the 1960s and 1970s, an environmental pollution crisis broke out,

and scientism, rationalism, and anthropocentrism were further questioned and criticized, and ecologism and holism were promoted. In environmental protection, the government, the market and a narrowly defined concept of civil society "coexist and restrain each other." Environmental law has a distinctive personality. It adapts to the moral, orderly pattern and realistic needs of the era of ecological civilization, guarantees the life of "nature" (ecological balance), and ensures that "people" can live safely and healthily with freedom, dignity, and meaningfulness.

Mei Xueqin

December 18, 2020

The 39th Broadyard Workshop

Environmental Changes and State Governance:

From the Experiences of the UK and the US to the Reality in China

December 11, 2020

The workshop was moderated by Prof. Mei Xueqin. Prof. Zhang Shiqiu from the College of Environmental Sciences and Engineering, Peking University, gave a presentation titled "Equal Emphasis on Ironhanded and Moderate Governance: A Multi-win Scenario in Environment, Economy and Society." She pointed out that in the current environmental governance process in China, it is necessary to emphasize the combination of an iron fist and good governance. Only in this way can it be possible to seek a win-win situation for the environment, economy and society.

Prof. Zhang Shiqiu first reviewed China's environmental problems and situation and proposed three key terms. The first one was "turning point." Since the 1980s, China's rapid economic development has brought about serious environmental problems. Entering the new century, China started to take a more radical approach to solve environmental problems. Such an approach helped China reverse the situation of a continuous increase in pollutant emissions and serious pollution, curb the deterioration of the situation, and generally improve the quality of the environment. The second key word was "transition." China is transitioning from the extensive mode of development, featuring high-emissions, high-consumption and high-pollution, to an intensive mode of development featuring efficient and qualified growth. The third one was "transformation." China is now in the process of transformation from traditionally obtaining growth at the expense of natural resources and the environment to a mode of green development. The term "transformation" means more of a structural and in-depth social change compared with "transition."

Zhang Shiqiu expressed her belief that the environmental problems confronting China are more complicated in natural significance and filled with more conflicts of interest in social significance. Local, regional and global environmental issues are closely related, and the relevant subjects include individuals, organizations formed by various groups, and society. This means it is very important to seek a harmonious or even win-win development approach within the complicated conflicts of interest, which requires us to have a spirit of "integrity and innovation."

China has indeed made great progress in environmental pollution governance but it is also encountering huge challenges in that pollution control has entered the tough stage, and it is rather difficult to continue the improvement in environmental quality. Against this backdrop, pollution governance requires not only natural science and engineering science, but also wisdom from social science. First, with the space for low-cost governance of pollution being squeezed, the marginal cost of pollution governance and structural adjustment in the future will go up, which means a continuous increase in economic and social pressure. China's environmental governance has gone through stages, from controlling pollutant emissions in the early stage, to focusing on high-quality control of emissions, then to controlling emissions based on the improvement of quality nowadays. In the future, the control of pollutant emissions will be based on the prevention and control of health risks. Complying with the path of development, refined management will become inevitable in the future. Second, environmental issues involve a lot of subjects that are entangled in a complicated way. The polluters are diversified, and different interest-holders have different agendas. In this sense, multiple conflicts of interest exist among the same kinds of environmental issues. Third, mass incidents related to the environment have seen a rising trend, which may trigger instability in society.

In a word, environmental issues should be discussed from the perspective of overall social operation mechanism. With China's environmental capacity declining, how should the environmental capacity be distributed? The answer to this question will have a huge impact on the relations between different social groups as well as the overall development of society. The Chinese government has promised very clearly to realize ecological civilization. But it remains a test whether it can make a step forward. The following questions are what currently need to be answered. First, can the current system help us realize a green economy and green society? Second, is our current price signal distorted, and will it help realize fair and effective distribution of environmental resources? Third, when it comes to natural capital, are we talking about the distribution of its stock or the distribution of the flow of ecological services based on its stock? In which way is the value of the flow of ecological services built into the market and government decision-making? Fourth, when conflicts of interest happen, what principles will the beneficiaries, protectors, restorers and destroyers comply with when sharing the benefits and cost?

Zhang Shiqiu pointed out that before answering the above questions, we must know that environmental problems not only relate to the relations between human beings and nature but relations between people. The solution to the former can rely on technological innovation, while the solution to the latter can only rely on the innovation of the system. In this sense, in the spirit of "integrity and innovation," "integrity" means sustaining the environment and natural capital, increasing or at least maintaining its value, and protecting the environment and the fair distribution of natural capital. "Innovation" refers to seeking an effective and low-cost strategy of control, providing a consistent signal and guiding a continuous improvement in the behavior of various actors.

In this regard, he proposed the following suggestions for

environmental governance. First, avoid flocking blindly to conduct environment governance. It may quickly produce a highly effective result in a short term, but, like "quenching thirst by drinking poison," society may have to pay a very high price for it. Second, construct an environmental governance system based on environmental rights, which is a very important part of environmental governance. Establish a system of checks and balances of power.

Third, properly produce price signals and produce price signals through policies to guide behaviors. Fourth, make highly efficient and low-cost pollution control strategies. Fifth, build a cooperative and coordinative mechanism between regions that represents the principle of sharing responsibilities and interests. Sixth, consider both poverty alleviation and environmental protection when formulating environmental policies. Seventh, establish a relationship of alliance and check-and-balance between government, enterprise and the public through transparent administration and information disclosure. Eighth, strengthen the participation of the public and collect sustainable social capital via green and good governance.

Prof. Wang Mingyuan, from Tsinghua University School of Law, discussed the emergence and nature of environmental administration based on a comprehensive analysis of Western society, economy, technology, politics and law in modern times.

Wang Mingyuan reviewed the development of human history, pointing out that the models of human rights in human society have undergone three stages, from which the corresponding public administration model and political-legal model have emerged.

The first-generation of human rights were personal, passive, and free defensive rights. This type of human rights originated under the framework of classical liberalism (from the 18th century to the 1930s). The form of state was the night-watchman state, the public administration was passive administration, and the contradictory

relationship was the relationship between civil rights and national obligations. The political-legal model was representative democracy with a deterministic rule of law; it pursued a pro forma substantive justice. The second generation of human rights were positive social rights that attached equal importance to the individual and the collective. This type of human rights originated under the framework of classical interventionism (from the 1930s to the 1980s). The form of state was the social state, and public administration was an active administration. There were two contradictory relationships: the relationship between civil rights and national obligations, and the relationship between public interest and government authority. The political-legal model was representative democracy with the deterministic rule of law; it pursued essential substantive justice. At the same time, crises of legitimacy and rationality were gradually emerging. The third generation of human rights were positive environmental rights that attached equal importance to the individual and the collective. This type of human rights has experienced the three frameworks of classical interventionism (1960s-70s), neoliberalism (1980s to 2008), and neo-interventionism (2008 to the present). The form of state is a risk society/environmental country, the public administration is risk administration, and the contradictory relationship is the relationship between public interest and government authority. The political-legal model is consultative and participatory democracy. The administrative process has the characteristics of politicization, democratization, socialization, and marketization, pursuing good governance and procedural justice.

Wang Mingyuan opined that the third generation of human rights attached more importance to the right to know and participate in environmental rights. Environmental rights and interests are very complicated. For example, ventilation rights, rights of lighting, and safety rights all belong to rights, but more objective interests, such as

clean air, cannot be entitled as a right, and are usually realized through public participation. As a result, public administration has risks and obvious uncertainty, and even a crisis of legitimacy has appeared in management. To solve this problem, in addition to law enforcement powers, Western environmental administrative agencies also have quasi-legislative and quasi-judicial powers. For example, in the US, many environmental cases can be handled by administrative judges without going to state or federal courts. At the same time, in order to avoid the emergence of a crisis of legitimacy, Western countries have introduced public participation on the basis of traditional representative democracy, allowing ordinary people and other relevant interest groups to participate in the administrative management and administrative decision-making process, in order to better reflect their wishes and demands, thus allowing administrative agencies to appropriately consider the demands of relevant stakeholders when making public decisions. Decisions made on this basis are generally acceptable to everyone, and administrative efficiency has also been improved, which helps to resolve potential conflicts and balance the interests of all parties.

Wang Mingyuan pointed out that new changes have happened in the field of environmental administration in China. On one hand, environmental administrative organs now enjoy certain quasi-legislative power, quasi-judicial power, and administrative power; on the other, citizens can participate in the process of administrative decision-making and administrative management in accordance with the law, provide opinions, and even participate in hearings and file public interest litigation. From the government to society, there is not only a strong political will to build an environmental management system, but also a high degree of attention and demand. At the same time, the legal system is constantly improving. In general, although our country has borrowed from Western

experience and practices, we have our own national conditions and are different from other countries in legislative, judicial, and administrative fields. Therefore, in the future, we must aim to protect the public's environmental rights and interests, and insist on a road of environmental administration with Chinese characteristics.

Prof. Xia Mingfang, from the Center of Ecological History, Renmin University of China, gave a presentation titled "Toward Consensus-based Disasters: The 'Confusion of Heaven and Man' in Chinese Disaster Reduction Culture." He pointed out that the concepts of consensus-based disasters and disruptive disasters were both put forward by American sociologists. Consensus-based disasters refer to the fact that the parties involved in the disaster have reached a consensus about the situation of the disaster and the measures to taken at the moment (including the norms and values to be followed), so it may lead to relatively united behavior; a disruptive disaster is just the opposite. According to the understanding of the American sociology of disaster, amid the disaster, people's understanding of the cause of the disaster changes. At the beginning, they recognize the event as a natural disaster, so are relatively restrained in their actions. They may hold the spirit of both mutualism and altruism and be satisfied with the assistance from the government and society. However, as a disaster develops, the affected people will increasingly think that they are victims and have suffered a man-made disaster. Then, the government will become a target to be criticized, questioned, and reflected upon, which is not conducive to the government's work in the later stage of disaster alleviation.

Governors have several options when facing accountability. One is not to admit the existence of the disaster; another is not to admit that the occurrence of the disaster is related to governance, expressing the belief that the disaster is a natural disaster; still another is to admit responsibility while giving an explanation that is most exculpatory to

themselves. Facing the ensuing doubts and criticisms from the public, governors gradually step back until they take the blame and resign. The so-called "natural construction" exists in the second choice, namely, attempting to turn the disaster into a natural disaster so as to bypass any human factors. However, once the disaster has been attributed to nature, more emphasis should be given to technological approaches to deal with the disaster. By contrast, people-to-people relations and people-to-nature relationships will be put aside. The corresponding consensus reached at the levels of country and society will be conducive to the governance of the disaster. But there is a certain paradox in this choice: when the government evades responsibility, it also diminishes the ability of the government to make efforts in the process of disaster prevention or disaster relief. Therefore, this choice is unfavorable for managers to better manage disasters, promote social unity, and promote the superiority of the system.

Xia Mingfang expressed his view that in the traditional Chinese disaster reduction culture, there is a tradition of politicizing disasters. The ancients believed that "natural disasters" were caused by the fault of the ruler. Therefore, when faced with natural disasters, the rulers should apologize, encourage the free airing of opinions, brainstorm ideas, rectify the administration system of government officials, and take a series of measures to reach a consensus in society. However, there were some problems in the process of coping. For example, in the Han Dynasty, although the emperor admitted that the disaster was his own responsibility, he was unwilling to bear this responsibility. Instead, he tried to put the blame on the high-ranking officials and let them bear the responsibility. This behavior also brought a great negative impact on the dynastic politics of the Han Dynasty. During the reign of Empress Wu Zetian, there was also a controversy about the fire that occurred in Mingtang Hall — whether it was a natural or man-made fire. It was also a discussion about whether the emperor should bear

responsibility for disasters. In addition to the emperor's interpretation of disasters, the people also have their own views on disasters. For example, from the uprising from Chen Sheng and Wu Guang to the Yellow Turban Rebellion in the Eastern Han, ordinary people believed that once a natural disaster occurred, the dynasty's Mandate of Heaven had been removed and a new political force would replace it. This statement reflects the revolutionary nature of traditional Chinese disaster reduction culture.

Xia Mingfang opined that if a disaster can be turned into a consensus-based disaster, the governance of the disaster will become more successful. First, the disaster should be redefined from the perspective of the interaction between human and nature. It is not to simply divide disasters into natural and man-made disasters but to form a consensus that any disaster may have human and natural factors. In this way, by complicating it, more reasonable approaches will be available in coping with the disaster. Second, in the process of disaster alleviation, science, not pseudoscience, should be respected and combined with humanistic disaster relief. For instance, when coping with the COVID-19 epidemic, it can be obviously sensed that the current mainstream ideology especially emphasizes the superiority of the people, mutual assistance and the feelings of nation and family, which is quite different from the past.

Liu Yidong, a research fellow from the Institute for the History of Natural Sciences, Chinese Academy of Sciences, gave a presentation titled "Major Risks in Science and Technology and Crisis in the Knowledge Environment: The Biggest Challenge Facing National Governance and the Scientific and Technological Revolution and Distribution Revolution It Triggered." He pointed out that the emergence and evolution of human civilization relies on two basic conditions, namely natural conditions and knowledge conditions. The destruction of the former has triggered ideas, countermeasures and

actions for environmental protection and sustainable development, but the destruction of the latter, especially the misuse and abuse of scientific and technological knowledge, has not attracted enough attention.

With the rapid development of emerging technologies, there is a trend of technological explosions with frequent occurrences of technological risks and technological ethical issues, which have attracted much attention. At present, the Chinese government attaches great importance to the governance of science and technology risks and science and technology ethics issues. In 2019, the National Science and Technology Ethics Committee was established. General Secretary Xi Jinping emphasized the prevention of seven types of major risks, and major scientific and technological risks are one of them. He emphasized bottom-line thinking and strengthening system construction. At the beginning of 2020, the UN Secretary General issued a statement, stating that human progress and development in the 21st century are facing the threat of the "Four Horsemen of the Apocalypse," one of which is the illegal application of high-tech. It is an important issue nowadays to reflect on the way of technological development, explore technological risks and ethical issues, strengthen research on the governance of major technological risks, prevent and control technological risks without giving it up on account of small obstacles, allow science and technology to have a sustainable and sound development, and continue to create benefit for society. At present, scientific and technological risks are becoming more and more dangerous, and there are many serious loopholes in human security protection measures. Humankind is facing unprecedented double challenges. Only by launching new scientific and technological revolutions, industrial revolutions, distribution revolutions and national governance revolutions can we effectively deal with these challenges.

According to Liu Yidong, first, we much reflect on the two overall

views of science and technology. There are currently two overall views of science and technology; one is optimistic and the other is pessimistic. The former posits that human society is now in the era of information technology, and will enter the era of biotechnology and intelligent technology through the fourth industrial revolution in the future. The latter holds that the development of human science and technology may lead to devastating disasters, but this view has not aroused enough repercussions in mainstream society, and views on the science and technology policy plans of various countries are still mostly optimistic. Per Liu Yidong, the results of optimism and pessimism are asymmetrical. If the pessimists are wrong, the development of science and technology will at worst slow down or be delayed. But if the optimists are wrong, the consequence will be inescapable. So, bottom-line thinking requires us to pay attention to the most unfavorable situations, especially those that concern human safety and human destiny.

Second, the current concept and management system has a series of serious loopholes in its ability to prevent and solve major scientific and technological risks. For example, technological ethics laws cannot be enforced on all laboratories and scientific and technological experts in the world. In this Internet era featuring the easy spread of knowledge genes, as long as there is one unrestricted laboratory producing devastating knowledge achievements, it may cause catastrophes with the spread of that knowledge. And those that are self-disciplined are actually making undeserved sacrifices. In addition, there are three types of people who are not subject to the laws of technological ethics: one is hackers, personal laboratories, and science maniacs; the second is the militaries of some Western countries who develop cutting-edge weapons on the grounds of defense; the third is the R&D laboratories of large multinational companies. With the most R&D funds and operating in accordance with the way of enterprises, their principle of

operation respects the priority of their interests. Although they cannot directly develop dangerous products, their technology and products can be easily misused by terrorists. The second loophole is that people continue to believe in the idea of nuclear balance and try to ensure their own safety through mutual checks and balances or even mutual destruction. However, this thinking is completely ineffective in limiting cutting-edge weapons, because the threshold for the use of genetic weapons and artificial intelligence weapons is very low and does not depend on scarce raw materials; therefore, this concept is wrong.

Liu Yidong pointed out that the human security crisis has triggered new scientific and technological revolutions, new industrial revolutions, and new distribution revolutions. At the key level, it is necessary to put emphasis on striving for survival and safe development, and a third security concept is needed to replace the existing optimistic and pessimistic concepts. The third security concept emphasizes that in future development, cooperation is more important than competition, security is more important than wealth, direction is more important than speed, and long stability is far more important than temporary prosperity. In the field of science and technology, the principles of doing risk-control in advance of technological innovation, and doing scientific research based on ethics should be adhered to, and we should not follow the previous Western path of "pollution first, governance later," and "innovation first, ethics later." At the level of technology and economy, it is necessary to transform from rough innovation to sustainable innovation, and vigorously promote the new scientific revolution characterized by the rise of interdisciplinary science, the new technological revolution characterized by the rise of controlled technology, controlled innovation and sustainable innovation, and a new industrial revolution characterized by the rise of think tanks, creative cultural industries, cultural and technological industries, and social enterprises. In the forthcoming new distribution revolution, new

technological revolution, and new industrial revolution, China has four major advantages and is fully equipped to take the lead in action. The first is theoretical advantages, proposing to build a community with a shared future for mankind and safeguard human security. Second, China did not choose the previous Western path of "pollution first, governance later; transformation comes the first, ethics the second." Third, cultural advantages — China's collectivist spirit and excellent culture have been well demonstrated in the fight against the epidemic. The fourth is the advantages of transformation. China is in a new era of changing lanes for overtaking and spearheading the development.

The pandemic that raged throughout the world in 2020 sounded an alarm for human security. Major scientific and technological risks have intensified. With a series of loopholes in human security prevention and control, human security is facing unprecedented challenges, and technological transformation and industrial transformation loom ahead. Speeding up the building of a community with a shared future for mankind is not merely icing on the cake, but providing a necessary tool in a time of great need. The new distribution revolution, new industrial revolution, and the new technological revolution are huge challenges to national governance.

Prof. Liu Xiaoting, from the School of Philosophy, Beijing Normal University, gave a presentation on "Environmental Hominology Practice under the Circumstances of Doomsday." He expressed his belief that although the world's carbon emissions amid the epidemic in 2020 declined for the first time since World War II, this is only a one-time phenomenon. Since the production and living conditions of people have not changed much, the irreversibility of the current trajectory of the change in the earth's environment will not change significantly, and the world will quickly enter a doomsday situation. The increasing extreme weather in recent years is a sign of the impending arrival of doomsday, and Hawking's prediction has become

a forecast. The current pressure on the global environment mainly comes from three fundamental factors: over population, the competitive development of countries based on the market, and the poor-quality concepts and consumption patterns of human beings. Therefore, the fundamental disadvantage of environmental governance lies in its inability to form internationally unified rigid regulation, along with the general tendency of the public to believe in getting through the crisis through sheer luck, and the disconnection between the improvement of human condition and the environmental situation.

Liu Xiaoting pointed out that making the environment an element of hominology and a benchmark for evaluation involves the issue of natural covenants. In ancient society, man made a covenant with God. After the Enlightenment, there was a covenant between man and man, that is, the social contract theory. Nowadays, it is a contract between humans and nature. But how can we make a covenant with nature? Facing the increasingly severe environmental situation, we can re-plan the future of mankind. To realize this covenant, a deep environmental enlightenment is required, that is, a second Enlightenment. The first enlightenment was the relationship between man and man. Now, we must enlighten the relationship between man and nature, re-examine and think about what human beings do in nature, and discuss the meaning of life. From this perspective, the environment is a unique element of civilization, and a slow variable of civilization.

In the process of enlightenment, one should accept a new concept of human beings, that is, spiritual hominology. Man has both a natural part and a spiritual part. The difference between humans and other species lies in man's spirit. The difference between people is not looks or gender, but mainly their differing personalities. The new Enlightenment actually is a basic process for each individual, from establishing a collective personality to an individual personality, and then to a universal personality.

During the panel discussion, participants exchanged ideas on following issues.

1. Do China's environment protection policies lack flexibility when being implemented? Early on, our government focused too much on GDP, and the performance evaluation of local officials was also mainly based on GDP. Now, the governance idea may be overcorrected, and when practicing the political will of environment protection, it may cause investment waste or growth restriction.

2. The relationship between consensus-based disaster and collective action. The division between the poor and the rich in resources and voices brings great challenges to win-win cooperation, which must be resolved by a series of institutional mechanisms. For consensus-based disaster, the longstanding institutional problem needs to be dealt with, because disasters actually reoccur. Though the factors of disaster may differ, the subjects and objects also vary, there should still be a long-term institutional and systematic response measures in society. We must react quickly to emergencies.

3. Disasters in antiquity and environmental problems occurring in modern times may not belong to the same scope of discussion. Traditional natural disasters, such as earthquakes, tsunamis, typhoons or landslides, are usually sporadic and incidental events driven by nature instead of humans. However, the modern environment crisis is systematic, endogenous and artificial due to changes in science and technology, industry or social organizations after human society entered the modern era.

4. The reference of traditional Oriental wisdom on environmental governance. Unlike its Western counterpart based on scientism and rationalism, Oriental wisdom is an arcadian scene in terms of its concept, institution and practice, but it is more likely to cause low-level equilibrium. We should find a middle ground between the two values and represent this moral idea in law.

5. Control expanding scientific risks. Some scholars believe that incentive mechanisms should be reestablished to pay more attention to those scientists caring about long-term human development. There are also views that people cannot abandon the cold war mentality inherited from nuclear equilibrium, and people can only learn lessons by experiencing small-scale localized destruction.

Hou Shen, an associate professor from the School of History, Renmin University of China, gave a presentation on "The Role of Professional Knowledge in Environmental Management in the Late 19th Century." She expressed her belief that to explore the role of professional knowledge in environmental management, we must first discuss the role of the state in environmental management. In the late 19th century, European and American countries around the Atlantic entered an era of "technology control," thus a new relationship among state, society and nature was formed and a new concept of the "environmentally governed state" emerged. The "environmentally governed state" does not develop linearly from a national security state or welfare state, but it is closely related to the welfare state. For example, during the period of progressivism in the late 19th century, a progressive reform emerged on both sides of the Atlantic, which laid great emphasis on public health issues. Moreover, public health issues directly referred to environmental health issues. Public health issues cannot be tackled if sewage systems, garbage disposal, and water supplies are not rebuilt. "Environmental governance" is related to "environmental protection" to a certain degree, but focuses more on "governance" in that the state participates in governing nature as an actor, rather than letting individuals, communities, families or cities rule. However, state governance may also lead to state abuse of natural resources.

First of all, the "environmentally governed state" is a modern product that did not appear until the late 19th century, when

professional knowledge emerged. There was environmental governance in traditional societies. For example, in the water governance of oriental societies, the state played a very active role in constructing large water conservancy projects: it was not only the most essential allocator, but also the most active implementer and major provider of funds, and ultimately it determined how water resources were distributed and who would profit. However, though the state could obtain certain legitimacy through occupation of water conservancy and land resources, it did not mean that the state could become legitimate by environmental governance in this period. State legitimacy was still obtained by guaranteeing security, and it was the need for security that forced ordinary people to transfer their individual rights. Therefore, though elements of environmental governance did exist in ancient traditional societies, they cannot be defined as "environmentally governed states."

The emergence of the "environmentally governed state" in the late 19th century had its own historical background. First, the environmental problems faced by mankind became increasingly complicated. After entering the industrialization of society, environmental issues have changed from physical and biological issues to chemical issues, obliging the state to act more. Second, the role of the state as a knowledge provider also changed. The environmental knowledge provided by traditional countries was more about "discovery," that is, discovering the resources of a certain place, which entailed an exploration of the earth itself. In the late 19th century, the country started to use its knowledge to intervene in the lives of ordinary people. As ordinary people could not understand increasingly complex environmental issues, the government gradually dominated environmental knowledge. It not only provided knowledge, but also used knowledge to govern nature. Third, increasingly complex environmental governance requires huge funds. Taking water control in

the western US as an example, the management of the Colorado River made the intervention of the federal government indispensable. When the federal government intervened, its role in the western US underwent a fundamental change. Fourth, the public started to expect their country to govern the environment and required the country as well as authorities to take responsibility and solve problems.

Moreover, an "environmentally governed state" is not a single actor, and there exists the problem of "agency capture." In modern countries, with the increasingly detailed division of professional knowledge, more and more institutions emerged in the national system, among which competing relationships in terms of power, discourse, funds, and understanding of the problem itself appeared. Take the US as an example. In the early days, there were only Department of Agriculture and Department of Internal Affairs. In the late 19th century, as resource conservation movements and nature conservation movements spread, various departments were set up, but they had different demands and different understandings of natural resources. For example, the National Park Service regarded nature as an aesthetic need, while Forestry Bureau emphasized its utilitarian use. Thus, a lot of contradictions appeared among institutions.

Thirdly, what impact will environmental governance have on the organizational form, power, and functions of the government, and what role should the government play in it? In progressive years, a government that did more was a better government. American liberalism also changed from the laissez-faire of the 19th century to liberalism in the 20th century, and it promoted a certain kind of collectivism with public interest appeals. Discussions on this issue have been especially intense against the backdrop of the still uncontrolled coronavirus pneumonia epidemic. COVID-19 is not only an issue of health, but also about environmental governance. More and more people are espousing their view that when facing global environmental

problems, human beings need to rethink the original form of liberal government.

Prof. Zhou Li, from the School of Agricultural Economics and Rural Development, Renmin University of China, introduced a new model of Multiple Streams theory in the agenda setting of the county ecological governance policy in China via a case study on "Purchasing Afforestation and Ecological Services of Third-level Market Design in Daning, Shanxi Province."

Multiple Streams theory is an important theory in public policy, which discusses the process of policy agenda setting, including three main factors of problem stream, policy stream and political stream. Issues handled by government decision-making will come together to form a problem stream, which can generate and change public policies. Around urgent problems to be solved, corresponding solutions and policy options will be proposed, which constitute a policy stream. Factors such as civic mood, political ecology, and interest-related groups will affect the process of policy agenda, which is called the political stream. The three streams need to be brought together at a certain point in time to drive the policy agenda setting. This point is called a "policy window." When the "policy window" is opened, policy makers must seize the critical moment to promote the discussion of a specific issue and take quick action.

Zhou Li expressed his belief that the case of Daning, Shanxi, reflects the Western Multi Streams theory from a Chinese perspective. The county of Daning is an ecologically fragile area located in the western part of the Loess Plateau, on the right side of the big bend of the Yellow River. The new secretary of Daning County Party Committee introduced purchasing afforestation, that is, the government organized afforestation cooperatives to purchase tree planting services from local people. According to the arrangement, the local government was to compensate for the cost in advance and later would pay the remaining

amount if the trees were still alive three years later. This project motivated all stakeholders and was remarkably effective. The idea of "purchasing afforestation" originated from the local response to the central government's advocacy that "further reforms in Shanxi Province be deepened and resource-based cities be promoted to transform and develop." Local governors were faced with multiple challenges, such as the fight against poverty, air pollution, improving power grid projects, and promoting rural revitalization. These combined to form a "problem stream." After "purchasing afforestation" was put forward, the project needed the support of the higher government, so the upward transmission of local feedback triggered a discussion about the same preference of the "policy stream" and "political stream." Local governments followed the decision of the central government, while on the other hand, they also had to satisfy local preferences. "Purchasing afforestation" created a policy community where all levels of government, from the central to the grassroots, began to respond. Among them, there was the process of "transmitting an order from above," that is, when the central government proposes, the locals follow. Also, there was a process of "reporting the feelings of the common people to the higher authorities," that is, under the administrative leadership, the local government first launched "purchasing afforestation" and later, it became the will of the central government who further promoted it nationwide by the power of the Party and government.

In the case of purchasing afforestation in Daning, Shanxi, the government played an active role. The local government produced and converged the "three streams," and the central government played the highest authoritative role. In addition, this case also reflected the characteristics of China's bureaucracy, that is, with the dominant leadership of high-level central government, the policy preferences of local governments can still be expressed. Zhou Li expressed his belief

that in the face of complex environmental problems, even if human beings find it "difficult to do something," they should not "do nothing." People come into this world with a certain mission, so we should play an active and promising role. The role of government, market and society in environmental governance is worth exploring, but the indispensable role of government should be fully recognized.

Prof. Fan Chunping from the School of Humanities and Social Sciences, Beijing Institute of Technology, gave a presentation on the "Environmental Impacts and Governance Reflections on Industrialized Agriculture," which included three parts: "The Ecological Constraints of Civilization," "The Consequences of Industrialized Agriculture" and "Let Agriculture be Agriculture."

According to Fan Chunping, there is a global consensus that we should keep civilization within ecological bounds. The emergency response is to preserve half of the earth and so that it could perform its ecological function. She used several models to visually present the severity of ecological deterioration. The first was the "Earth Framework Model," which included nine evaluation dimensions of the ecological environment. In each dimension, green meant the earth's ecology was relatively normal, yellow for alert, and red for crisis. At present, among the nine, five were already on alert, and three have become critical, which meant that the bottom line of the earth's ecological health had been crossed. The second model was the "Ecological Overload Day," referring to a certain day of a year when the resources and natural purification capacity that the earth could produce and handle in that year would be exhausted by humans. The study found that in 1970, humans began to overdraft the resources of that year, and in that year, seven days was overdrawn. By 2019, humans had used up the natural output resources of that year on July 29. The COVID-19 pandemic in 2020 and consequent economic shutdown caused this data to drop for the first time, returning to the level of 2012,

that is, August 22. This model also reflects the degree of destruction that the high-consumption lifestyle of developed countries could bring to this planet. If the whole world lived as Australians do, it would need the resources of 5.4 earths; while for the American mode, it would require the resources of 4.8 earths; for the Chinese mode, it would need two earth's resources. Even according to the world average, humans still need 1.6 earths' resources every year. In addition, the more developed a country is, the earlier their resources are used up: February 11 for Qatar, March 18 for Canada, April 12 for Singapore, and April 18 for Norway. China ran out of its share of the year in June. Against such a severe backdrop of ecological overload, "setting aside half of the earth" seems extremely urgent, because once climate change passes the "tipping point," triggering a "positive feedback mechanism" would not be able to reverse the situation. For example, methane gas under the Arctic ice can cause a greenhouse effect more than 20 times higher than carbon dioxide. The higher the temperature, the more methane will be emitted, and the faster the climate will warm up, thus becoming a vicious circle.

Second, we should promote ecological organic planting and focus on improving soil quality. The overuse of chemical fertilizers in industrialized agriculture leads to soil compaction and loss of organic matter. Organic matter is the main contributor to "cation-exchange capacity," which is a measure of the ability of soil to retain fertility, and it is also the main contributor to soil moisture storage. When the organic matter in soil drops from 2 percent to 1.5 percent, its fertilizer retaining capacity decreases by 14 percent. If the organic matter increases from 1 percent to 3 percent, the soil water-retaining capacity would grow by 6 times. Fan Chunping emphasized that mankind should return to agriculture. To protect the soil is to protect the future of mankind. The only way ahead is to give up the obsession that man can conquer nature and to wholeheartedly find a nature-based solution. In

October 2012, led by Institut Nationale de la Recherche Agronomigue (INRA), more than 20 world-renowned soil scientists jointly published an article in *Nature Communications*, calling for the adoption of a globally consistent soil strategy to address climate change and taking advantage of the strong carbon fixation capacity of global agricultural soils, so as to ensure a stable global climate and food security. The carbon content in soil is four times that of air, and soil improvement can solve many other problems. Returning to agriculture, in essence, is to adapt to the laws of nature and use natural methods to transform nature.

Prof. Dong Shikui from the School of Grassland Science, Beijing Forestry University, gave a speech on "Grassland Culture and Ecological Civilization," that included three parts: "The Origin and Evolution of Grassland Culture," "The Ecological Civilization Characteristics of Grassland Culture" and "Transmission and Development of Grassland Culture."

In Dong Shikui's view, the core of grassland culture is a coupled system consisting of "herders," "grassland" and "livestock." From the perspective of ecology, this system is diverse and flexible. There are two conjectures about the origin of grassland culture, namely the "Hunting Origin Theory" and the "Agricultural Separation Theory." The "Hunting Origin Theory" proposes that the earliest people walked out of forests to hunt on the grasslands. In hunting activities, primitive people gradually began to raise young animals and herd them as livestock. The "Agricultural Separation Theory" proposes that agriculture appeared earlier than stock raising. Farmers needed animal power to break ground and plant crops, so when there were enough animals, part of them were raised as livestock and converted to grazing on the grassland. Dong Shikui expressed his belief that, from an ecological perspective, nomadic life completely mimics the form of primitive hunting, so the "Hunting Origin Theory" is more reliable.

As for the origins of grassland culture, there are two conjectures:

"single center" and "multi-center," with the latter hypothesis having gained more support. It is currently believed that grassland culture has seven centers of origin, including the sub-Saharan region of the African continent and East Africa along the African Rift Valley; the Saharan desert and the Arabian desert; the Mediterranean coast; the Anatolian plateau and the mountain areas from the Iranian plateau to Central Asia; the Qiangtang Plateau in China; the high latitudes in northern Europe and Asia; and the Andes in the South American continent. Regarding the development and distribution of grassland culture, currently with nitrogen 16 isotopic measurement, it is believed that grassland culture appeared around 8000 BC and has lasted until the present. Today, 40 percent of the world's land has inherited elements of grassland culture, and various regions have rich and diverse connection with grasslands. Grassland culture has also played an important role in history. By using the water flow accumulation model combined with drone photography and 3D modeling technology, scientists have found that the ancient Silk Road was discovered when ancient herders and livestock went down the mountains to find new pastures, more than 4,000 years ago. The paths of the herders became the routes for caravans to and from Europe and Asia. Without herdsmen as their guides, ancient caravans would not have been able to pass through the vast grasslands, nor could they have reached Chang'an, the capital of the Tang Dynasty. In addition, the "carbon reduction" effect of grassland culture is also worthy of attention. Grassland husbandry helps people sustain their lives in arid and semi-arid areas as well as in alpine and arid areas.

Regarding "The Ecological Civilization Characteristics of Grassland Culture." Dong Shikui expressed his belief that, in addition to the so-called farming civilization of Confucianism and Taoism, the equality and mutual cooperation between man and nature embodied in grassland culture also manifested the "harmonious coexistence of man and nature" in Chinese culture. Ecological civilization is an idea of

development, basically adhering to the principles of harmony, circulation, coordination, moderation, prioritization and humanity. Grassland culture is both diverse and simple, respecting and worshipping nature, and its essence is ecological thinking. This traditional nomadic mode of production and lifestyle balanced the relationship among people, lifestock and grass dynamically, thereby realizing the sustainable development of the grassland economy and society.

There are four major characteristics of grassland culture: One is production culture. Grassland civilization lives by water and grass, making full use of water, heat, grass resources and livestock training. Both vertical nomadism and horizontal nomadism are the best practices of modern bionics and ecological principles. The second is life culture. Whether it is the Tibetan, Mongolian, Kazakh, or Yugur ethnic groups, the food, clothing, use and costs of grassland people are all purely natural, which is a manifestation of the natural low-carbon and environmental protection concept. The third is spiritual culture. The music, dance and art of the nomads are all inspired by nature. For example, the musical instrument such as the horse-head fiddle and dances such as the milking dance and chopstick dance all embody the nomads' love and embrace of nature. The fourth is ecological ethics culture. Whether it is primitive beliefs or the religious beliefs that formed afterward, they both embedded elements of harmony between man and nature.

In regard to "Transmission and Development of Grassland Culture," Dong Shikui expressed his belief that it is necessary at first to learn from the idea of harmony between man and nature in grassland culture. Grassland culture symbolizes many aspects of ecological civilization. The transmission of grassland culture is conducive to establishing and practicing the ecological civilization idea of respecting and caring for nature, reflecting on modern industrial civilization, and

incorporating nature into the system of human development. Second, the transmission of grassland culture is conducive to adhering to the principle and value of sustainable development. The key issue of ecological civilization construction is how to deal with the relationship between economic growth and environment protection. Learning from the ecological ethics of grassland culture is helpful to achieve sustainable development. Third, the transmission of grassland culture is conducive to enhancing confidence in building ecological civilization. With population growth and increasing living standards, problems such as resource shortages and environmental degradation have become more prominent. It is necessary to learn from the core ideas of grassland culture, attach importance to the carrying capacity of nature, and restrict resource consumption and possession by humans.

Prof. Mei Xueqin, from Department of History, Tsinghua University, gave a presentation on "Environmental Change and National Governance: From British and American History to the Chinese Reality." She pointed out that now, as China has entered the environment moment already undergone by European and American countries, relevant historical research should be more concerned with reality and explore the great changes taking place in this land, rather than just burying themselves in literature and research.

Mei Xueqin expressed her belief that "seeking truth" was the most important character of a history researcher. Take British history as an example. In a sense, current historical study in China on British industrial revolution is still relatively one-sided. It assumes that industrial civilization is the "original sin" and is the chief culprit of growing environmental problems, and further considers Britain as the initiator of industrial evil. However, if we take an overall perspective on the British industrial revolution, we can find that it has solved the problems of stagnant development and hunger in the agricultural era. In dealing with these difficulties, the industrial revolution gradually

developed according to the needs of the domestic market and the global market. Early industrialization, urbanization, and industrial civilization were not products of human planning. In the process of industrialization, when old problems were solved, new issues emerged, namely the environmental pollution and ecological damage being discussed today. The path Britain chose was to develop, on the one hand, while pollute and govern the environment on the other hand. Therefore, environmental governance research is definitely an indispensable part of the research in the history of the British industrial revolution. The emphasis on environmental governance is not to highlight people's growing awareness. Environmental governance is more like a "save oneself" or "survival" issue.

Before the 1960s and 1970s, environmental governance in Britain was not united. For example, a county council or city council would pass a bill to solve local problems, and connections between regions were not that close. In the 1960s and 1970s, state agencies partially intervened to promote information exchange and mutual assistance between regions. For example, in 1863, the UK promulgated the *Alkali Act* to deal with chemical pollution. Then the *Rivers Pollution Prevention Act*, in 1876, and various other laws were brought in at the end of the 19th century, including one aiming at cholera. The government intervened in a flexible way, on the principle of being "practical and feasible," paying attention to "adjusting measures to local conditions," and bringing into consideration the actual conditions of different ecosystems (e.g., forests, rivers, coastlines). Since the 1970s, government intervention has become much more professional. The Department of the Environment was established in the UK in 1970. In 1990, a special *Environmental Protection Act* was passed, which integrated various laws on pollution control for water and air, and promoted the incorporation of related agencies. In 1996, the UK established a special environmental protection agency to coordinate the

pollution prevention and control of rivers, air, soil and other aspects. In 2001, the Department of Environment, Food and Rural Affairs was established. The history of British environmental governance reflects a pattern of "multi-governance." Relying on only one party, whether communities, individuals, or government top-level design, cannot solve the problem. Environmental governance must be led by the government, together with social participation and corporate self-discipline. Both the legislative and law enforcement relationship between the central and local governments, and the joint responsibilities of the government, society and enterprises need to be clarified.

Regarding the lack of environmental governance research on the welfare state, Mei Xueqin expressed her agreement that environmentally governed state did not develop linearly from national security state and welfare state. The construction of an environmentally governed state was an integral part of the self-adjustment and improvement of the welfare state. In her view, the transformation of the welfare state was also the transformation of capitalism. In the West, people have been exploring how to build a society where humans and nature can live in harmony. Chinese scholars should not confine themselves to domestic experience, but take a long-term view and be inclusive.

During the discussion period, the participants exchanged their ideas on the previous presentations.

1. The role of government in environmental governance. Indeed, the government must assume its responsibilities, but must not try to control everything, as undue intervention will raise concerns about power abuse. Therefore, in environmental governance, citizen participation and people awareness are important. There should be a contract between man and nature. In ecological civilization, people should have a new way of thinking, or people today should truly recognize how people should be in an ecological age. Human society

must establish a public interest group, which, equipped with professional knowledge, can represent the interests of mankind. However, there is still no relatively strong operating mechanism that can compete with the market as a public interest group, and an ideological market has not yet been established anywhere in the world. To found a public interest group requires an "incentive equilibrium" mechanism. Public intellectuals care about human destiny not because of their awareness or feelings, but because of their professionalism. For this, they deserve to be accorded fame, power and wealth. For the time being, the United Nations is not qualified to be a public interest group. On the one hand, the UN has become a club of major powers. On the other hand, its law enforcement capability is weak. Nevertheless, there is no other institution at this time that can replace it.

2. The effectiveness of human intervention. Nature has an amazing ability to recover, so some environmentalists advocate "inaction." However, people's role in that recovery must not be ignored. An extremely damaged environment can never be restored without human assistance. For example, in the Sanjiangyuan area, if the local species are not used to improve the soil in the early stage, the environment will never be restored. However, human intervention should also be limited. For instance, the authorities can draw an ecological bottom line and incorporate ecological indicators into the government performance evaluation.

3. Transmission of grassland culture. The grassland is experiencing serious degradation, and people there do not maintain their traditional lifestyle voluntarily, but rather as a result of being marginalized by industrialization. Currently, many national policies on grassland are based on agricultural experience. For example, contracting with each household destroys the original environmental protection unit, causing grassland degradation. In addition, herders should have the right to choose their own way of life, either to maintain

a nomadic life, or to settle down to allow their children to receive education and join in modern life. If they choose to continue nomadic grazing, the state should coordinate and plan for them according to the environmental protection unit. In short, everything must follow scientific laws.

4. Environmental governance is not only a national issue, but also a global one. The environmental governance achievements in Western countries should be partly attributed to "environmental cost transfer," that is, transferring their polluting industries to developing countries to deal with instead of them. Nevertheless, solving environmental problems in developed countries does not mean global environmental problems are successfully tackled. When the global ecology is on the verge of collapse, developed countries will also be victims. Therefore, every country should recognize the seriousness of environmental problems and the "time-bound principle" should be emphasized. However, the current mandatory "2030 UN Sustainable Development Goals" is far from enough.

In her summary, Prof. Mei Xueqin, from Department of History, Tsinghua University, pointed out that, for her, there were three things gained from this workshop. First, the participating scholars reached a basic consensus that environmental issues were both important and complex, but each individual could make due contributions by utilizing their knowledge. Second, even more valuable than the consensus, all participants could express their opinions and fully communicate their key issues and ideas. The dialogues and discussions in the conference were highly valuable academic resources. Third, the issues discussed there could be passed on by academic publications or other means to generate better public responses. In the future, such academic conferences should be held more. Prof. Mei said she looks forward to continuing in-depth exchanges with everyone on environmental issues.