

Climate Change Governance System in China: Top-Down or Bottom-Up?

Yue He

Institute for Disaster Management and Reconstruction, Sichuan University, Chengdu, China

Keywords: Climate Change Law; Climate Change Risk; Climate Change Governance;

Abstract: Climate change is recognized as one of the most serious environmental problems in the world. Climate Governance System has been in transformation from Top-Down to Bottom-Up in recent decades. Both governance system has its own merits and drawbacks. It is necessary to take advantage of both paths and mobilize resources from all sector to achieve the ultimate climate objectives in the future.

1. Climate Change and Its Impacts

Climate change is the defining issue of changed weather patterns during a period of lengthy time. According to Article I of UNFCCC(United Nations Framework Convention on Climate Change), Climate change is defines as a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.

The root causes of Climate change, as scientists suggest, is the emission of greenhouse gases, primarily carbon dioxide (CO₂). Right now there are some basic well-established scientific links recognized by the the world:

The concentration of Greenhouse gases in the earth's atmosphere will affect the average global temperature on Earth; The concentration has been rising steadily, and mean global temperatures along with it, since the time of Industrial Revolution; The most abundant GHG, accounting for about two-thirds of GHGs, carbon dioxide, is largely the product of burning fossil fuels.

These scientific confidence has grown over the past centuries and few people doubt these.

Industrial development was highly related to burning fossil fuels since Industrial Revolution. The result of burning fossil fuels is Carbon Dioxide, which is the most important GHGs source. The concentration of GHGs in the atmosphere will allow the high-frequency radiation to reach the surface of earth, but block the low-frequency radiation which is emitted back from the earth. This imbalance cause the upshot of climate warming.

2. Barriers to Climate Risks

2.1 Tragedy of Commons

Tragedy of Commons was first introduced by Garrett Hardin in his book called Tragedy of Commons in 1968. In early modern villages, there are "commons" where all the farmers own the rights of raising cattle. As a rational man, farmers will raise as many cattle as possible on the commons, so that they can get the most available benefits and only suffer a fraction of the harm to the commons. But if every farmer do the same thing, it will cause the environmental pollution and every farmer must share the responsibility.

Climate change risks face the similar dilemma of Commons. On the one hand, climate resource is limited. On the other hand, each country want to benefit as much as possible on the climate platform. A lack of effective and universal treaty and system to allocate the limited climate rights and responsibilities may lead to a total mess. Climate change issue is a global problem, it will go to the dead end only with limited parties get involved. Many countries want to get a "free-ride" and stand away from the International Climate Change Treaty. It will be beneficial to these countries in a short term, but may bear the irreversible cost in a long term. Only enforceable cooperation and collective actions made can the world solve this daunting problem. However, it is extremely

difficult to reach an enforceable deal among all the countries. Even though, we still see many inspiring achievements and cooperation since the adoption of Kyoto Protocol and Paris Agreement on the international sphere.

2.2 Uncertainties

With the scientific progress and model perfection of climate change, many aspects of climate change has been acknowledged and recognized. There still some uncertainties like GHGs Emission and so on.

According to the Fifth Assessment Report of IPCC, with the severe circumstances, global average temperature will raise 4.5 degree Celsius; with the most effective emission reduction instrument, global average temperature will raise within 2 degree Celsius. Climate change Impacts will depend on the sensitivity of climate system. Unfortunately, right now scientists have no idea to figure out the sensitivity of climate system. Uncertainties of the relationship between GHGs emission and extent of temperature raising lead to the problem of predicting future temperature in an accurate matter.

2.3 Intergeneration Impacts

As we know, GHGs will remain in the atmosphere of earth for decades,so it will cause warming effect for a long period. Most of the heat is install in the ocean and the ocean heat capacity is limited. Once it pass the threshold, the temperature on earth will raise even quicker than before. In addition, based on the huge volume capacity of ocean, the heating process will last for decades, which will affect many generations' lives. Then it comes with arguments, like do contemporary generations owe the future generations the responsibility of prevention of physical and biological risks? Should people have the responsibility of protecting their social welfare and health.

2.4 Climate Justice

When we talk about Climate Justice, it will be better to know about Environmental Justice first. Climate justice is the exact expressions of Environmental Justice in the field of climate change. According to the EPA definition, Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Climate Justice is a complex value system of security, equity, freedom and efficiency, in which all the values must be in reasonable coordination.

Climate Justice must solve the problem of past, contemporary and future. Corrective justice solve the past problem of GHGs emission. Since Industrial Revolution, developed countries produced much larger amount of GHGs emission than developing countries, in terms of both total and per person emission. Developed countries is beneficial to large scale emission, result in prosperous development in economic, society and culture. These countries must account for their GHGs emission and share the most parts of responsibility. Both in UNFCCC and Kyoto Protocol, Common But Differentiated Responsibilities represented the expression of corrective justice.

Distributive Justice solve the contemporary problem of GHGs emission. According a statistics by Professor Eric A.Posner and Professor Cass R. Sunstein. United States and European Union accounting for about 55% Carbon Dioxide Emission of the world total emission from 1850 to 2003. In recent decades, with the transformation of economic structure and promotion of renewable energy, the GHGs emission in developed countries has reached the top and increased in a smooth process. However, GHGs emission in developing countries like China, India and Brazil, has burgeoned year by year. In 2007, China replaced United States and became the largest GHGs emission country in the world. But when comparing with the GHGs emission per person, there's still long way for developing countries to catch up with the developed countries. These basic facts bring out the core issue in the distributive justice: the paradox between developing countries' development rights and GHGs emission reduction responsibilities.

Paris Agreement deal with the equity issues which is not well practiced in the Kyoto Protocol. Article 6 of Paris Agreement introduced more open market-based mechanism including all the

countries in the world. Parties can choose to pursue voluntary cooperation in the implementation of their nationally determined contributions to allow for ambitious mitigation and adaptation actions. We expect the Paris Agreement would embrace more countries to implement their contributions as much as possible in the future and facilitate a more effective and equitable framework to address the distributive justice.

Intergeneration Justice solve the problem of future. Scientific research establish firm evidence that the GHGs will last for centuries in the atmosphere once it produces, which would cause great influence on next generations. Climate capacity is limited, not only to contemporary distribution but also to different generations. The fundamental argument of intergeneration justice is how to allocate climate resource between different generations. Some argue that it must use the economic theories like discount rate to judge. It is not fair for contemporary generation to shoulder burden because of discount rate, which will turn out to be little in the future. However, others argue that cost-benefit analysis has unavoidable drawbacks. Biodiversity loss and environment degradation can not be fully counted monetarily. Many uncertainties would result in totally different consequences. From my point of view, it is necessary to set a baseline for intergeneration justice. Contemporary generation should not develop in the way that result in impair next generation's welfare and health.

3. Climate Change Regime in China

3.1 Governance System

China's Climate Change Department of Ministry of Ecology and Environment is responsible for addressing climate change and GHGs emission reduction. Its functions are as below:

Analyze the impact of climate change on the economic and social development; Implement proactive national strategies on climate change; Initiate the formulation and the implementation of China's major objectives, policies, programs and plans, and institutions on the control of greenhouse gas emissions, on the promotion of green and low-carbon development, and on the adaptation to climate change; Provide guidance to other governmental departments, industries, and local governments in such implementation;

3.2 Climate Change Policy and Response

In 2007, the State Council of China issued *China's National Programme on Climate Change*, which was the first national programme among all developing countries. In addition, China released *China's Policies and Actions for Addressing Climate Change* white book each year since 2008. It now has 11 reports in all and the newest one is 2018 edition. These reports illustrated climate change influence on China and China's mitigation and adaptation actions and policies and international corporation achievements as well. What's more, in 2010, National People's Congress released *National Planning on Climate Change(2011-2020)*, which provided a climate change guideline for next ten years. In 2016, State Council approved *Working Plan on GHGs Emission Reduction*, within which affirm the low-carbon development objectives and reach the top of carbon dioxide emission around 2030.

3.3 General Principles and Guidelines

3.3.1 Ecological Civilization Construction Principle

In 2012, The 18th National Congress of the Communist Party of China made the strategic decision of Ecological Civilization Construction which require the whole society to respect and protect the environment. In 2018, Ecological Civilization Construction principle was recognized in the Article 89 of Constitution of China. Since that, Ecological Civilization ideology were implemented in amendments in the laws and regulations. For example, newly released *Air Pollution Prevention and Control Act* first recognized GHGs as air pollution material and fell within the ambit of air pollution governance.

Ecological Civilization Construction give us a fundamental idea of dealing with the relationship between human and nature in a reasonable way.

3.3.2 Green Principle

In 2017, *General Rules of Civil Law* was issued with fruitful progress. Article 9 of *General Rules of Civil Law* introduced provisions of Green Principle, which means civil parties shall be conducive to saving resources and protecting environment. There are many laws and regulations dealing with environmental protection. It is necessary to arrange these laws and regulations in a effective and coordinated matter because enforceable laws and regulations are the solid foundation of environmental and ecological protection.

4. The Future of the Climate Regime in China

4.1 Top-Down Climate Governance System

Top-Down Governance System were first introduced on the international climate change platform. In 1992, UNFCCC was adopted and ratified by 197 countries. Later Kyoto Protocol was adopted in 1997 and became effective in 2005. According to Kyoto Protocol, developed countries should collectively reduce GHGs emission to 5 percent below 1990 levels by the time of first compliance period, 2008-2012.

In a word, top-down system used uniform mitigation and adaptation polices and mechanisms to tackle climate change. These policies including but not limited to Cap and Trade System and Carbon Tax System. Top-down system has lots of advantages, like specified and universal objectives. These objectives are promising if it effectively implemented. However, lack of powerful enforcement apartment, makes emission reduction report and verification impossible and ineffective. Take Kyoto Protocol for example, it does not provide enough enforcement and liability requirements in the protocol, which lead to the protocol no strong liability provisions. The outcome of Kyoto Protocol did not meet the previous expectation. So people doubt the Top-Down system whether is best way to tackle climate change issue and promote the transformation to Bottom-Up system.

4.2 Bottom-Up Climate Governance System

Bottom-Up system were practiced at the time Top-Down occupied the climate change governance. Compared to Top-Down, it has more flexibility and accessibility. Each country or region shall make Nationally Determined Contributions according to their emission reduction capability and reality. Different counties have different economic and natural situations, Bottom-Up give us more resilience in forging climate change policies and responses. On the one hand, it can encourage and embrace more counties, not just developed but also developing countries, to get involved and cooperated together. On the other hand, it would become easier to enforce the deal than Top-Down System. Developed countries cannot use the excuse that developing countries sit outside the table.

When we talk about Bottom-Up, we should not forget the pilot program endeavor within one country. In the United States, a number of state governments have established emission trading systems, like Northeast Regional Greenhouse Gas Initiative (RGGI), which including nine states. In 2011, National Development and Reform Committee released a pilot program of carbon emission trading within seven provinces. Bottom-Up system with no doubt can promote the emission reduction and sustainable development in more fields.

Nationally Determined Contributions was first introduced in Paris Agreement, which is a good explanation of Bottom-Up system, which is quite different from Kyoto Protocol. In Kyoto Protocol, developing countries are not required to reduce GHGs emission, they can join the treaty to benefit from Clean Development Mechanism. However, Pairs Agreement give these developing countries opportunities to make ambitious commitments and actions to reduce GHGs emission, which would lower the possibility of Carbon Leakage and result in absolute reduction. However, there are still some drawbacks of Bottom-Up system that we should not miss. For example, NDC targets may be arbitrary and capricious because there's no general objectives.

5. Conclusion

It is obvious that Global Climate Change Governance system has been stepped in a crossroad. In the past, Top-Down system occupied dominance in the international and national level. Recently, Bottom-Up pilot program in China has made progress and showed some advantages. From my point of view, both governance system has its own merits and drawbacks. China has ratified and approved Paris Agreement in 2015. It is necessary to make a comprehensive legislation on climate change mitigation and adaptation area, which would provide fundamental principles and guidelines of overall national plan. By the same time, supporting pilot program of renewable energy and carbon emission trading system, is a useful way to achieve sustainable and green development. The ultimate goal is to stabilize greenhouse gas concentrations at a level that would prevent dangerous anthropogenic interference with the climate system. In other words, China must put more efforts on focusing how to mobilize resources from all sectors to structure more effective strategies. I look forward to see more interesting progress in Bottom-Up governance system in the near future.

Acknowledgement

This paper was supported by “Doctoral Graduate Student’s Academic Visit Fund of Sichuan University”.

References

- [1] United Nations’ Website gives basic definition on climate change, see <https://www.un.org/en/sections/issues-depth/climate-change/index.html>.
- [2] Department of Climate Change of China gives introduction of its functions and duties, see http://english.mee.gov.cn/About_MEE/Internal_Departments/201605/t20160526_346894.shtml
- [3] Eric A. Posner and Cass R. Sunstein, Climate Change Justice. *The Georgetown Law Journal*, 96, 2008, p1579.
- [4] Daniel A. Farber, Climate Justice, 110 *Michigan Law Review* 985 (2012).
- [5] Daniel A. Farber, The Case for Climate Compensation: Justice for Climate Change Victims in a Complex World, 2008 *Utah Law Review* 377 (2008)
- [6] Global Climate Change Impacts in the United States, U.S Global Change Research Program, at 107 (2009), available at www.globalchange.gov/usimpacts.
- [7] IPCC, Summary for Policymakers, in *IPCC Climate Change 2014: Impacts, Adaptation, and Vulnerability* 13 (2014).
- [8] IPCC, Technical Summary, in *IPCC Climate Change 2014, Impacts, Adaptation, and Vulnerability* 53 (2014).