Financial Function on Sustainable Development of China

----- Report for Extractive Sector, Just Transition and Human Rights

This is the China latest updated promise on sustainable development commitments.

"China's updated NDC goals are as follows: aims to have CO2 emissions peak before 2030 and achieve carbon neutrality before 2060; to lower CO2 emission per unit of GDP by over 65% from the 2005 level, to increase the share of non-fossil fuels in primary energy consumption to around 25%, to increase the forest stock volume by 6 billion cubic meters from the 2005 level, and to bring its total installed capacity of wind and solar power to over 1.2 billion kilowatts by 2030." (Nationally Determined Contribution (NDC) Overview — submitted 10/28/2021)[1]

"Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient development" (Article 2 Paragraph 1(c) Paris Agreement)

Basic Information

China is the biggest carbon emitter in the world. In 2019, China emitted 12055.41 million tonnes of CO2 equivalent representing 24.223% of global emissions.[2]

- Total Emissions: 12055.41 MtCO2e
- Emissions per Capita: 8.56 tCO2e/person
- Emissions per GDP: 844.22 tCO2e/million $GDP
- ND-Gain Vulnerable Score: 0.40[3]

The following data presents other characters for China's carbon emission. For example, the majority of China's energy is not produced in green sources, and the utilization is also not efficient enough.

- 64.30% of coal in electricity generation ranks the third place of 197 countries.
- Around 6.5k billion kWh electricity for net consumption ranks the 108th place among 197 countries.
- Energy contributes 10618.71 MtCO2e as 83.58% of the whole carbon emission. Meanwhile, industrial process produces 1220.29 MtCO2e as 9.6% of carbon emission. [4]

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[1] NDC Partnership, https://ndcpartnership.org/countries-map/country?iso=CHN
[2] Climate Watch, https://www.climatewatchdata.org/countries/CHN?calculation=ABSOLUTE_VALUE&document=3000&end_year=2019&start_year=1990#climate-enhancements
[3] Ibid.
[4] Ibid.

On one hand, China takes efforts on sustainable development as submitted first NDC, new or updated NDC, long-term strategy and net-zero target. But one the other hand, the efforts are not enough.

- Overall rating for China on Climate Action Tracker is highly insufficient.
- Policies and action against modelled domestic pathways are insufficient.
- NDC target against compelled domestic pathways is insufficient.
- NDC target against fair share is highly insufficient.
- Climate finance is not assessed.[5]

Concerning on above facts and data, China does not present a satisfied performance on carbon emission control and climate actions. But it is not a problem only for China. Sustainable development is an assignment of the whole world. The function of international agreements and institutions is to encourage each country to take equivalent effort according to their economic capacity and social resilient ability. But the difficulty is what is the motivation to encourage countries' commitments. Both countries and corporations are doing costs and benefits analysis all the time. Otherwise, they will be knocked off during competitions. So, the only way to encourage them to invest more on sustainable development is visible and expectable benefits.

Climate finance is not assessed on the climate action tracker, but it is a good point to start following analysis. The first step is to change the exist finance rules. The reason is the original financial system does not take account of the benefits of sustainable development. In other words, nature capital has value, and such value should be taken into account. The second step is to discover whether there are new market failures appearing and how to recover it by governmental intervention. The last step is to reconsider the problems in globalization and fairness transition.

Financial Mechanism 1: Carbon Market for Mitigation

Mitigation is the first goal of the Paris Agreement. It is also regulated in article 4 of the Paris Agreement.

"Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change." (Article 2, Paragraph 1(a)).

There are two products in Chinese carbon market. The first and the most important one is a carbon allowances market called emissions trading scheme (ETS).[6] After defining the upper limits (caps) of greenhouse gases emissions and then allocating allowances to each entity, all

[5] Climate Action Tracker: https://climateactiontracker.org/countries/china/
[6] IEA, China's Emission Trading Scheme, https://www.iea.org/reports/chinas-emissions-trading-scheme

entities in this market can trade the remaining allowances with other entities. The second product is China Certified Emission Reduction ("CCER"). If a company does carbon offset activities voluntarily and gets the certificate, the entity can sell the certificated carbon emission amount in the market.[7]

- There are eight cities having established carbon exchanges in China, and the whole national carbon market was formed in 2021. But national carbon exchange and city exchanges will not overlap with each other. One corporation can only join one exchange, no matter whether it is a national one or a regional one.[8]
- These carbon markets are expected to fully cover all large enterprises in eight industries, which are electric power generation, building material, steel, non-ferrous, petrifaction, chemical industry, paper making industry, and civil aviation. The whole national carbon market is expected to cover about 7,500 enterprises covering 6.7 billion tons of CO2 emissions, which is equivalent to 72% of Chinese total carbon emissions in 2017.[9] But the first stage only contains 2,200 corporations and covers 4 billion tons of CO2 emissions.[10]
- Carbon financial products are mainly divided into three categories. The first one is trading instruments, including carbon futures, carbon options, and over-the-counter derivatives. The second one is financing instruments, such as pledges and mortgages based on carbon allowances and CCER. The third one is carbon financial support instruments, including carbon index and carbon insurance.[11]
- There are five key systems. The first is the overall carbon emission management system. The second one is the carbon emission allowances management system. The third one is the carbon emission rights trading system. The fourth is the carbon emission reporting system. The fifth is the third-party verification system.[12]

Comments:

The Carbon Emission Trading System is a new market. In original situation, nature capital only holds value. But now, it uses a carbon calculation and trading providing such value a price. It is equal to give a potential benefit to environmental-friendly industries. But it also has problems.

[7] Explainer: What is the China Certified Emission Reduction scheme and why is it important for Beijing's carbon neutral goal? https://www.scmp.com/business/article/3165425/what-china-certified-emission-reduction-scheme-and-why-it-important

[8] 中国碳排放交易制度：历史、现状与展望，p2&7 https://www.belfercenter.org/sites/default/files/files/publication/karplus-china-national-ets-june-2021-chinese.pdf

[9] Ibid, p3.

[10] Ibid, p6. Also see: International Carbon Action Partnership: China National ETS, https://icapcarbonaction.com/en/ets/china-national-ets

[11] https://www.bjets.com.cn/article/xxzx/rddt/202205/20220500002180.shtml

[12] Ibid.

- The first problem is that the function of the carbon market is to reduce emissions per GDP, but it may not reduce the overall carbon emissions. In other words, it can make per unit carbon emission from all industries and corporations producing the same value of commodities or services. But with development, the overall emissions amount will still increase. The way to reduce overall carbon emissions is to give corporations a lower cap in ETS. But such adjustment will increase carbon emission prices in the market.
- The second problem is that this trading system increases the costs of commercial operations. But investment capitals on disposal industrial wastes also increases costs. So, if the former costs are lower than the later one. The corporation will choose to buy carbon emissions allowances on the market, but not to dispose its industrial wastes. In the real world, according to the economics of scale, big corporations usually need to deal with huge amount of wastes, so, if they invest on wastes disposal, the costs of disposal per unit waste is lower than small corporations' costs. Therefore, the effect of such carbon market is encouraging big emitters doing wastes disposal and small emitters buying emissions allowances in the market. The issue is whether it is a reasonable and acceptable outcome.

Financial Mechanism 2: Taxation for Mitigation

Nature resource tax and environmental protection tax are two categories included in the Chinese taxation system.

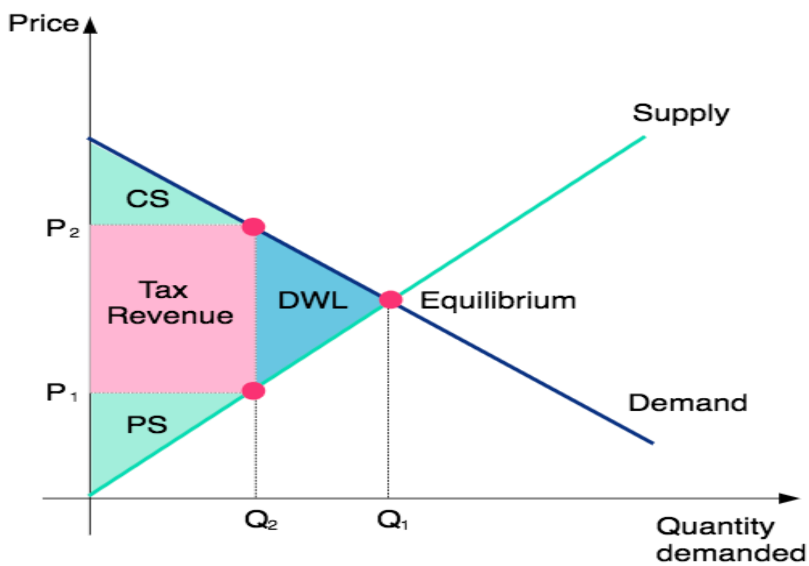
- Taxpayer for nature resource tax: Entities and individuals who mine or produce taxable resources in the territory of China and its sea areas under its jurisdiction are taxpayers of resource tax.[13]
- Nature resource tax includes metal ores, non-metallic ores, sea salt, crude oil, natural gas and coal.
- Natural resource tax incentives are given to low quality resources' miner or producer. For example, low-abundant oil and gas resources tax can be reduced by 20%.[14]
- Taxpayer for environmental protection tax: In the territory of China and its sea areas, enterprises, institutions and other producers and operators that directly discharge taxable pollutants to the environment are taxpayers of environmental protection tax and shall pay the tax according to the law.[15]
- Environmental protection tax includes air pollutants, water pollutants, solid wastes and industrial noises.[16]

[13] 中华人民共和国资源税法, art 1 http://www.chinatax.gov.cn/chinatax/n810341/n810755/c5136082/content.html
[14] Ibid, art 6.
[15] 中华人民共和国环境保护税法, art 2 https://www.mee.gov.cn/ywgz/fgbz/fl/201811/t20181114_673632.shtml
[16] Ibid, art 3.

- Environmental protection tax incentives: If the concentration of taxable air pollutants or water pollutants discharged by taxpayers is less than 70% of the national and local pollutants discharge standards, the environmental protection tax shall be reduced by 25%. If the discharge's concentration is less than 50% of the national and local standards, the tax will be reduced by 50%.[17]

Comments:

- Taxation increases producer's costs. National resource tax and environmental protection tax can be a promoter for producers transferring from traditional fossil industries to green energy industries.
- Chinese natural resource tax encourages corporation to explore the low-quality natural resources. It will cause more emission on per GDP. It may promote economic development, but, concerning sustainable development, it is worth to wonder whether such tax structure is reasonable.
- Tax can reduce carbon emission, because it increases the product costs, increases product prices and reduces the supply quantity. So, consumer surplus and producer surplus are both derogated. The remaining value is presented as the government's taxation income and deadweight loss. Government taxation income can be used to do more social services and achieve common interests, so it is not a loss. But the deadweight loss part means these values are lost because of taxation activities. Based on economics, the heavier taxation is forced, the larger deadweight loss will appear.[18]



[17] Ibid, art 13.
[18] https://www.studysmarter.us/explanations/microeconomics/supply-and-demand/effects-of-taxes/

Financial Mechanism 3: Financial Support for Adaption

Adaption is the second goal of the Paris Agreement. It is regulated in article 7 of the Paris Agreement.

"Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production." (Article 2, Paragraph 1(b)).

Chinese national plan schedules to provide financial supports on environmental protection, poverty reduction and green energy transition.[19]

Comments:

- The process of government interference is using taxation revenues and other governmental incomes to achieve common benefits. The basic principle is some fields, such as environmental protection, poverty reduction and green energy transition, cannot be promoted by the free market but sharing common benefits. So, government is the person to invest capitals doing it.
- The issue is still the motivation for the government to do it. The first one is gaining people's support. Governmental working reports will present their efforts on environmental protection and property reduction to prove their governing capacity. The second one is national strategy. For example, in the field of green energy transition, governmental investment is not only for environmental protection, but also competition with other countries takes more share of global markets in this emerging industry. The third one is international cooperation. China needs to be a responsible country in global cooperation and takes it deserved part to contribute to sustainable development.
- Besides of motivation, a bigger issue is how to supervise government to take enough and appropriate efforts. As for China, Chinese is really willing to see the China government do more communication and cooperation with other countries. Chinese is also expecting China government to be presented as a responsible government in the global society.

Further Comments on Globalization and Fairness Transition:

The above analysis is based in a nation. But if concerning globalization, the fairness issue becomes more urgent.

As for the carbon market, it is based on carbon emission allowances. Carbon emission allowances are issued by national authorities, so it is a national market. But concerning

[19] 中华人民共和国国民经济和社会发展第十四个五年规划和 2035 年远景目标纲要
https://www.gov.cn/xinwen/2021-03/13/content_5592681.htm

transnational corporations, such as PetroChina, they will choose the cheapest carbon emission countries to do polluting business operations. It is a reasonable reaction for a corporation to reduce operational costs in overseas investments. Otherwise, they will be driven off the market during competition. But the result is developing countries will bear more carbon emission and pollution. At this stage, it is also unreasonable to request these developing countries to adopt higher carbon emission standards. Because if a country does it, such transnational corporations will transfer their business to other developing countries. The result is if a developing country with high moral standards of environmental protection, it will fall into poverty. It should not be the right way. Therefore, only the countries concerted action can reduce the whole carbon emission of the whole world. Paris Agreement tries to do it, but it is very difficult.

Carbon emission taxation meets the same problem. Because it is also based on a nation’s authorities. Transnational corporations can do the global carbon emission shopping. During this process, the developing countries are usually burdened more pollution.

Many international agreements request and even force developed countries to do more on carbon emission reduction. But the reality is developed countries can easily transfer such unpopular burdens to developing countries by transnational corporations' international investments. Therefore, it is necessary to request transnational corporations to more contribution on global environmental protection. There are many approaches to do it.

- The most popular way is requesting transnational corporations to submit environmental, social, and government reports. It is a necessity for many stock exchanges, as a potential requirement for transnational corporations take social responsibilities.
- The second is encouraging transnational corporations to transfer relevant techniques. One possible approach is to reduce intelligential property protection level on such techniques.
- The third is forming special trademarks. If a transnational corporation contributes enough to sustainable development, such corporation is deserved a certificate, which is similar to a famous brand holding potential market values and reputations.
- It can also form an evaluation platform to supervise transnational corporations' operations. Just like securities safety evaluation platform, giving all transnational corporations a degree on sustainable development contribution is also a way to encourage corporations to do more gaining good reputations.

China meets many challenges. Sustainable development is one of them. As a Chinese, everyone is willing to see China can take its responsibilities to the earth and Chinese young generation.