National Climate Center
China Meteorological Administration

Non-Party Stakeholder Submission to the Talanoa Dialogue of the UNFCCC

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国家气候中心
National Climate Center

Foreword

The National Climate Center (NCC) of China is pleased to submit this document as a third-party submission to the Talanoa Dialogue of the United Nations Framework Convention on Climate Change (UNFCCC). The aim of this submission is to emphasize the equal importance to adaptation and mitigation in the transition to a climate resilient society.

The document focus on the spirit of the Talanoa Dialogue, by asking three main questions: where are we? Where do we want to go? And how do we get there? Studies show that global climate risks are increasing, in which the climate risks faced by developing countries are significantly higher than those by developed ones. In the process of achieving climate resilience and sustainable development, full consideration should be given to the realistic capabilities of social and economic transformation. For developing countries, adaptation is more realistic and urgent. The international community should maintain the principle of equal emphasis on adaptation and mitigation for a long time and help developing countries remove many obstacles in the field of adaptation. China, which is working hard towards the ecological civilization, has made remarkable progress in the areas of ecology-based poverty reduction and disaster prevention and reduction. It is hoped that developed countries will make more contributions in the field of adaptation for the realization of the Paris Agreement and the United Nations Sustainable Development Goals (SDGs).

Equal Emphasis on Adaptation and Mitigation Contributes to a Better Progress towards Climate Resilience

Contents

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1.Where are we？

1.1 Where we stand?

Various indicators and observations of the climate system indicate that the global warming trend continues. The average global surface temperature in 2017 was about 1.1°C higher than the pre-industrial level, which was the third warmest year after 2016 and 2015 since 1850 when there was a complete record of meteorological observations and which was also the warmest non-El Niño year (WMO, 2018) since such a time. In 2017, the ocean's heat content reached a record high, being the highest since modern observations were recorded. The average annual extent of Arctic sea ice in 2017 was the second lowest on record since 1979, while the average annual sea ice extent in Antarctica reached a record low. In 2016, major greenhouse gases reached a new high in the global average annual concentration, with carbon dioxide hitting 403.3 ppm, which is 45% higher than the pre-industrial (before 1750) level, being the highest value in nearly 3 million years. During the period from 1901 to 2017, the average surface temperature in China increased by 1.21°C. 2017 was an abnormally warm year, in which the average surface temperature in China was close to the highest in history. The sea level in coastal China showed a fluctuating upward trend from 1980 to 2017, with the average rate of rise being 3.3 mm/year. In 2017, the sea level in coastal China was 58 mm higher than the 1993-2011 average (CMA, 2018). Observations show that extreme weather and climate events caused by climate change such as heat waves, extreme precipitation and coastal floods are increasing in intensity, frequency and duration globally. In 2017, there were many serious weather and climate events around the world, including the very active North Atlantic hurricane season, severe monsoon floods in the Indian subcontinent, persistent severe droughts in parts of eastern Africa and heat waves around the world (WMO, 2018). Of various natural disasters that occurred globally in 2017, the meteorological ones were accountable for 93% of the total economic losses, a year that was recorded with the highest loss by meteorological disasters since 1980 (Munich Re, 2018). In 2017, heavy rains were frequent and extreme in China so that as many as 70 million people were

affected by the storms, floods, and geological disasters during the year. More than 700 people were killed or missing. The direct economic losses exceeded US$30 billion (CMA, 2018).

1.2 Observed impacts

Climate change has had and will continue to have a wide and profound impact on natural ecosystems and human society. Observations indicate that the changing precipitation and the melting ice and snow in many areas are altering the hydrological system and affecting the quantity and quality of water resources. Some terrestrial and marine species have changed in geographical distribution, seasonal activity, migration pattern, and abundances. Climate change brings about more significantly adverse than favorable effects on food production, of which wheat and corn are more affected than rice and soybean, with the former being reduced in production by an average of approximately 1.9% and 1.2% per decade, respectively (IPCC, 2014). In addition, climate disasters may also exacerbate existing conflicts and pressures in some areas to affect the livelihoods of people, especially the poor, further reducing the local adaptability to the adverse effects of climate change. In terms of the impact of climate disasters on human society, they are more significantly felt in developing countries than in developed ones. In the period from 1997 to 2016, about 11,000 extreme weather and climate events occurred worldwide, the meteorological disasters arising from which resulted in 524,000 deaths and economic losses of 3.16 trillion US dollars (based on purchasing power parity (PPP)) (Germanwatch, 2018). The analysis shows that most of the countries that are severely affected by meteorological disasters in the world are located in Asia, and a few in Europe and Central America, among which the most affected 10 (Honduras, Haiti, Myanmar, Nicaragua, the Philippines, Bangladesh, Pakistan, Vietnam, Thailand and the Dominican Republic are all developing countries, in particular some countries suffering heavy losses due to a single catastrophic event that is rare in history. For example, the losses caused by the tropical storm Nargis in 2008 account for 95% of the total that Myanmar has suffered from disasters in the last 20 years. The 1998 hurricane Mitch caused losses that account for 80% of what Honduras has suffered in the last 20 years. In recent years, weather and climate disasters in China have been continuously expanding and increasing in incidence, severity and direct economic losses, but the death toll has declined. In 2017, meteorological disasters damaged 2010 million hectares of crop, causing 913 deaths and disappearances, and direct economic losses of US$45 billion in China. The overall loss in this regard was lower than the average level in the past five years (CMA, 2018).

1.3 Risk in the future

The simulation of the future climate scenarios through the coupled model shows that the return period of future extreme weather and climate events will be shortened to varying degrees in different carbon emission paths, leading to unprecedented catastrophes in climatically vulnerable and sensitive areas (IPCC, 2013). The global heat waves in the 21st century will increase in intensity, frequency and duration dramatically. The 20-year extreme maximum daily temperature will increase by 1°C-3°C by the middle of the 21st century, and will increase by 2°C-5°C by the end of the 21st century. In a warmer climate, heavy precipitation events will increase in frequency and proportion globally. Especially in high latitudes and tropical regions, even some areas with reduced precipitation will experience an increase in heavy rainfall events. In addition, due to reduced precipitation and increased evaporation, the dryness in the Mediterranean, Central America, and southern Africa will further increase. The rise in sea level will also lead to an increase in extreme coastal high water level events in the future. China suffers a high level of risk of climate change in the world, with its adverse impact being significantly and deeply felt in the economic and social system (Qin et al., 2015). Various extreme events will have a greater impact on climate-sensitive sectors such as water, agriculture and food security, forestry, health and tourism. The Adaptation Gap Report 2017 released by the United Nations Environment Program (UNEP) shows that under the background of increasing climate impact, the global funding for climate change adaptation will greatly exceed current estimates. It is expected that the funding for adaptation in 2030 will be 2 to 3 times more than the current estimate and even 4 to 5 times in 2050.

1.4 Where to start

In the context of the increasing severity of global warming and extreme disasters and the threat they have brought and will bring to the sustainable economic and social development of humanity in the future, efforts must be made to adapt to and mitigate climate change, reduce the risk of extreme weather and climate disasters, and mitigate the adversity of global warming and extreme events to key areas such as food production, water, ecology, health, energy and transportation. At the scientific level, the IPCC issued a special assessment report on Managing Extreme Events and Disaster Risks to Advance Climate Change Adaptation in 2012, which described the interaction between disaster risk reduction and sustainable development, and raised awareness of disaster risk management. At the policy level, the Third World Climate

Conference (WCC-3) incorporated climatic disaster risk management into the Global Framework for Climate Services (GFCS) as a core category of climate change adaptation. The UN Sustainable Development Goals (SDGs) set in 2015 proposed that urgent action should be taken to address climate change and its effects, and enhance the national resilience to climate-related and other natural disasters.

2.Where to go？

Climate resilience and sustainable development are the bright future for humanity. The United Nations Sustainable Development Goals (SDGs) propose that urgent actions should be taken to address climate change and its effects, and enhance the national resilience to climate-related and other natural disasters. Measures to address climate change should be incorporated into national policies, strategies and plans. Education and advocacy on climate change mitigation, adaptation, reduced impact and early warning should be strengthened. Human and institutional capacity should be built in this connection. Developed countries should fulfill their commitments under the UN Framework Convention on Climate Change, which means that by 2020, they will jointly raise 100 billion U.S. dollars from various channels each year to meet the needs of developing countries, help them effectively implement mitigation actions, and increase the transparency in compliance. Capital should be injected into the Green Climate Fund as soon as possible to make it fully operational. Capacity-building mechanisms should be launched in LDCs and SIDS to help them conduct effective planning and management related to climate change. The Paris Agreement further devises global adaptation goals aimed at improving adaptability, strengthening resilience and reducing vulnerability, requiring Parties to undertake adaptation planning processes and take adaptation actions, submit and update regular adaptation information circulars, and conduct a regular stock-take of the overall progress in global adaptation action to assess the adequacy and effectiveness of support (Chen et al., 2016). The Paris Agreement clearly states that Parties should increase cooperation in adaptation actions, institutional arrangements and scientific understanding, help developing countries identify adaptation needs and priority areas of support, and that developed countries should provide particularly vulnerable countries with the financial support needed for adaptation.

3.How to get there？

3.1 Equal emphasis on adaptation and mitigation

Since the Paris Agreement was launched, a win-win, fair and reasonable global climate governance system for the global community has been taking shape. The goal of the Paris Agreement for the 1.5°C target is what the world needs to strive to meet. The IDNC comprehensive assessment report released by the UNFCCC shows that the Intended Nationally Determined Contributions (INDC) submitted by the parties to the Paris Agreement have covered 99% of the total greenhouse gas emissions of all parties. It is expected that the INDCs will reduce emissions by 2.7 billion tons of carbon dioxide equivalent by 2025 and 4.6 billion tons by 2030. From the perspective of global technological development in recent years, the booming renewable energy technologies have led to a significant drop in the cost of renewable energy use, providing more than half of the world's additional generated energy (IEA, 2018). Since 2010, the cost of new solar photovoltaic power generation has been reduced by 70%, that of wind power by 25%, and that of battery by 40%. At the same time, global coal consumption peaked in 2013 and has since entered into a period of continuous decline. This shows that mankind can achieve the purpose of curbing carbon emissions without compromising economic growth. At the same time, it also allows us to see the efforts of countries in the world to achieve climate resilience and sustainable development.

In spite of this, the emission reduction efforts of current stage and the potential technological developments indicate that there is still a certain gap for the achievement of 1.5°C and 2°C targets and there is still a need for significant global emission reductions and strong actions. However, further efforts to reduce emissions need to fully consider the technical feasibility and the additional social and economic costs as well as their impact on and implication for employment, poverty reduction, food security and environmental security. The interventions must consider not only the theoretical and technical possibilities, but also the actual national conditions of different countries, the availability of core technologies, the social and economic costs of rapid transition, and social affordability, especially the achievement of (SDGs). In the process of achieving climate resilience and sustainable development, we must fully consider the realistic capabilities of social and economic transformation. Adaptation and mitigation are two major countermeasures for mankind’s response to climate change. The two are mutually

reinforcing and are indispensable. Adaptation is more realistic and urgent for the existing and impending climate change risks. Developing countries in particular, which are in the historical stage of industrialization and urbanization are experiencing an increasingly growing demand for energy. Thus energy conservation and emission reduction are a long-term and arduous effort for them. The international community should strengthen its attention to adapting to climate change, maintain the principle of equal emphasis on adaptation and mitigation for a long time, continuously deepen scientific understanding of climate change adaptation, and accumulate successful experiences in this connection by continuing to implement adaptation actions.

3.2 Challenges for adaptation

To move faster toward the climate-resilient society and realize the sustainable development goals, in addition to the need to maintain the principle of equal emphasis on adaptation and mitigation, and the active accumulation and popularization of relevant successful experiences, it is still necessary to bear in mind the following challenges in this field:

(1) Insufficient conception and consensus-building in climate change adaptation. For example, too much attention is paid to climate change mitigation actions, while the understanding of the importance of adaptation to climate change, reduction of climate change impacts and disaster risk lacks. In particular, there is insufficient understanding of the severe impact of climate change on highly vulnerable countries and the poor. There is insufficient consensus on the urgency to take action for climate change adaptation.

2) Insufficient expertize and technology in climate change adaptation. For example, some key sectors or fields subject to climate change lack funds and strength for interdisciplinary integrated studies, there being still many uncertainties in the attribution of climate change impacts and inadequate momentum for the development and deployment of technologies for adaptation to climate change.

(3) Insufficient actions for climate change adaptation. For example, some national governments are slow to identify and address the threat of climate change impacts, being incapable of action in this regard.

In order to advance towards a climate-resilient society and realize the goal of sustainable development, it is necessary to effectively play the role of climate change adaptation

mechanisms and effectively implement actions to adapt to climate change. In addition to the above-mentioned three challenges, the developing countries have some obstacles before them in the process of promoting adaptation to climate change when advancing towards a climate-resilient society. Specifically:

(1) It is difficult to implement the development, application and transfer of adaptation technologies. Under the current Convention based framework, no technology transfer program has been devised to bring together donors and recipients. The developed countries oppose the transfer of technology with the reason that technology is owned by enterprises and the government has no right to force them to do so. Consequently, the transfer mechanism for adaptation technology resulting from the climate negotiation fails to be put in place.

(2) Very insufficient funding. Under the current mechanism, the obliged funding for climate change adaptation is voluntary contributions from developed countries, an arrangement that makes it difficult to implement funds for supporting developing countries in adapting to climate change.

(3) There is a serious shortage of adaptability. The developing countries are low in adaptation capacity. Moreover, there are still limitations that the development, deployment and application of technology are faced with, such as intellectual property rights, economic and societal implications, policies and regulations, public awareness, and information asymmetry. In order to effectively promote climate change adaptation, developing countries should further refine their specific implementation plans and rules to make an inventory of adaptation technologies and deploy them in a demonstration site in key sectors and areas subject to climate change (such as agriculture, forestry, water, ecosystems, coastal zones and health) in an orderly manner so that the coordination mechanism for field synergy and regional interaction will be developed over time to accelerate the implementation of adaptation actions.

3.3 Efforts of China

In order to better adapt to the effects of climate change, China has accelerated the ecological civilization and the green, low-carbon, climate-resilient and sustainable development. In the field of water security, considering the impact of climate change on the bearing capacity of water regimes, China has implemented the South-to-North Water Diversion Project, dividing and transporting water from the Yangtze River to northern China along three routes: eastern, central

and western. At the same time, the water pollution prevention and control of multiple river basins has been launched to ensure the safety and quality of water sources. In the field of food security, taking into account the changing hydrothermal conditions, the cultivation lines of the three food crops of wheat, corn, and rice have been moved northward, and the production of water-saving and drought-tolerant crops has been expanded in the arid regions of northwestern China for structural drought resilience, with concurrent water-saving farming and irrigation projects launched. In the field of ecological security, China has intensified afforestation and farmland-based reforestation, with the forest coverage increasing from 18.2% in 2004 to 21.7% in 2017. Thanks to the protection and restoration of wetlands and the designation of nature reserves, such spaces now cover 15% of the Chinese land area, which exceeds the world average of 12%. In the field of health and safety, China has established a national drinking water hygiene monitoring network, which currently covers 85.2% of prefecture-level cities, being dedicated to ensuring the safety of drinking water in both urban and rural areas. The comprehensive treatment of air pollution through coordinated actions to address climate change and environmental improvement has resulted in a markedly improving air quality in key urban agglomerations. In 2017, the concentration of PM2.5 in major cities in China dropped by 11.7% year-on-year, and the days of heavy pollution decreased by 28.8%. In the field of energy security, efforts have been made to improve the efficiency of energy use, with the adjustment of the energy mix being taken as an important measure to improve the ecological environment and adaptability. In recent years, carbon emissions per unit of GDP have continued to decline, and the proportion of clean energy consumption in energy consumption has increased year by year. The clean energy policies have been well implemented to continuously optimize the energy consumption structure, reducing safety risks at the energy supply side. At the same time, the risk assessment has been strengthened to increase the resilience of energy supply facilities.

At the same time, China is also working hard to integrate ecological management and ecological poverty reduction organically. In China, the poverty-stricken areas are highly correlated with the ecologically vulnerable zones. The vast majority of the poor lived in arid and semi-arid areas where the ecological system is most vulnerable. The unstable ecosystem, scarce water, sparse vegetation coverage, weak resilience and unreasonable human exploitation are more likely to cause ecological and environmental deterioration and amplify the impact of disasters. In recent years, the Chinese government has strengthened the management of ecologically fragile areas by protecting the original ecosystem, rehabilitating the degraded ecosystems, launching such ecological projects as the Three-North Shelter Forest, and developing such characteristic

industries with regional advantages as the wolfberry and grape one that has been focused on in Ningxia in recent years, the output value of which stands at 20 billion yuan (NDRC, 2018).

The Chinese government attaches great importance to climate change adaptation, taking the response to extreme weather and climate events and disaster risk reduction as an important action in this connection. Its emphasis on both engineering and non-engineering measures has enhanced its resilience to disaster risks in extreme weather and climate conditions. A disaster risk management system with Chinese characteristics is taking shape, a mechanism for prevention and reduction of disasters that features 'government stewardship, sector interaction and social engagement'. A robust multiple/diverse social participation mechanism has been devised to enhance the resilience to extreme weather and climate events and disasters. China's policies on climate change and disaster risk management give rise to good synergies between and among sectors, regulators and jurisdictions of central and local levels, raising the public's awareness of risks significantly to lead to the emergence of the atmosphere for disaster risk reduction in the entire society. Compared with 2006-2010, the numbers of deaths and disappearances, of people undergoing urgent resettlement and of collapsed houses due to disasters fell by 93%, 45% and 81% respectively in China in 2011-2015, which testifies a remarkable disaster management program (CMA, 2018). Despite this, China, as the largest developing country, is still faced with many deficiencies in adaptation. Its capacity in construction, operation, scheduling, maintenance and repair of infrastructure fails to meet the needs for adaptation, in particular that in such sensitive and vulnerable sectors, jurisdictions and fields as agriculture, water, ecosystems, cities, human health and major projects. There is still a large gap with the integrated disaster monitoring system and the disaster warning and forecasting service delivery. There is also room to be desired in terms of adaptation funding, technology and assessment methodology (NDRC, 2013).

3.4 Future prospect

Under the premise of building a community of shared future for mankind, all countries in the world should coordinate and reconcile domestic development goals and global emission reduction needs, seek the balance in value between their own development interests and the response to climate threats, and closely integrate adaptation policies with various policies for economic and social development. The Paris Agreement emphasizes that climate change actions, responses and impacts are intrinsically linked to equal access to sustainable development and poverty eradication and highlights that all countries must embark on a climate-friendly, low-carbon economic development path to succeed in both development and carbon reduction.

It is necessary to combine the long-term goal of addressing climate change with ensuring food security, poverty eradication, and sustainable development by making overall arrangements to achieve a win-win outcome for all parties. Therefore, the transition to a low-carbon economy under the long-term emission reduction target for climate change response should not be a constraint on but a rare opportunity for economic and social development. It is also the fundamental path for countries to achieve sustainable development. If developing countries, in the process of industrialization and modernization, are expected to meet the twin goals of development and low carbon at the same time, they are required to pursue a low-carbon transformation of their own development modality, a paradigm shift that emphasizes the 'climate-friendly' low-carbon development path and calls for the support from developed countries in funding, technology and capacity building to create an opportunity for their fair realization of sustainable development. China is willing to join hands with all other countries in the world to further promote the implementation of the Paris Agreement. Being highly responsible for the well-being of the Chinese people and the long-term development of mankind, it has been actively addressing climate change and extreme weather and climate events. By strengthening adaptation measures, exchanging best practices, and pursuing cooperative research and development, it is committed to making positive contributions to the protection of global climate and environment and the realization of global sustainable development goals.

Reference

[1] Chen M, Zhang Y, Li B, et al. Interpretation of Adaptation and Loss and Damage Elements in Paris Agreement and Possible Solution for China. Climate Change Research, 2016, 12(3):251-257.

[2] CMA. 2017 Yearbook of Meteorological Disasters in China. China Meteorological Administration. (in Chinese)

[3] CMA. China Climate Bulletin 2017. National Climate Center, China Meteorological Administration. (in Chinese)

[4] CMA. China Climate Change Bulletin 2017. National Climate Center, China Meteorological Administration. (in Chinese)

[5] Field C B, Barros V R, Mach K, et al. Climate change 2014: impacts, adaptation, and vulnerability. Contribution of Working Group II to the Third Assessment Report, 2014, Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

[6] Germanwatch. Global Climate Risk Index 2018. http://germanwatch.org

[7] IEA. World Energy Outlook 2017. International Energy Agency. http://www.iea.org/weo2017/

[8] Munich Re. Natural catastrophe review 2017. https://www.munichre.com/en/media-relations/publications

[9] NDRC. China's Policies and Actions for Addressing Climate Change 2017. National Development and Reform Commission of China.

[10] NDRC. National Strategy of Climate Change Adaptation. 2013. National Development and Reform Commission of China. (in Chinese)

[11] NOAA. State of the Climate: Global Climate Report for Annual 2017. National Oceanic and Atmospheric Administration, USA. https://www.ncdc.noaa.gov/sotc/global

[12] Qin Dahe, Zhang Jianyun, Shan Chunchang, et al. China's Climate Extreme and Disaster Risk Management and Adapt to the National Assessment Report. 2015. Science Press, Beijing, China.

[13] Schleussner C F, Lissner T K, Fischer E M, et al. Differential climate impacts for policy-relevant limits to global warming: the case of 1.5 °C and 2 °C. Earth System Dynamics, 2016, 6(2):2447-2505.

[14] WMO. WMO Statement on the State of the Global Climate in 2017. World Meteorological Organization. https://public.wmo.int

About National Climate Center

The National Climate Center (NCC) of China Meteorological Administration was established in 1994. It organizes and coordinates research efforts on regional climate, operational predictions and climate application and services in China and East Asian countries for disaster prevention and mitigation and for socio-economic development. NCC is also an important provider of research studies on and supporter to policy decisions on climate change in China. As a lead participant, it has organized and prepared three National Assessment Reports on Climate Change, especially the component of the volume on science. Each year, it issues, among others, the China Climate Change Monitoring Bulletin and the Green Paper on Climate Change. The Center acts as China's Technical Support Unit (TSU) for IPCC. It has organized the participation in IPCC related activities, in particular its previous assessments. It has organized the preparation of decision advisory reports on hot topics and focus issues found in the IPCC assessment reports. Being one of the main Chinese participants in UNFCCC, the Center takes the lead to coordinate China's participation in SBSTA. As one of the important national think tanks on climate change, it has contributed more than 40 analysis reports on climate change to the state leaders and relevant ministers in the past ten years as a scientific and technological support to the national internal and external policies on climate change.