



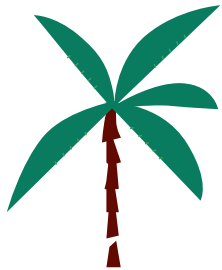
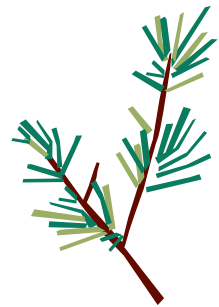
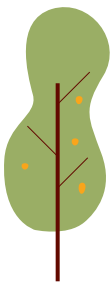
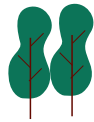
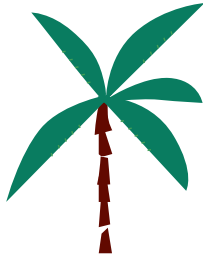
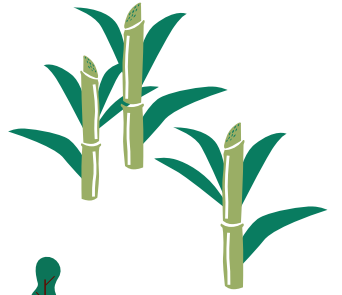
Food and Agriculture
Organization of the
United Nations

CLIMATE CHANGE AND TENURE RIGHTS

Interlinked challenges in China



Policy brief



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1. Introduction: unpacking the interlinkages between climate change and tenure rights

This policy brief sheds light on the challenges imposed on rural land tenure security by the risks and impacts arising from climate change, and enables a meaningful policy dialogue on pathways and opportunities to strengthen the protection of legitimate tenure rights in the context of climate change in China. The brief's objectives are to: 1) provide a broad overview of the major issues involved in the intersection between climate change and land tenure; 2) engage policy-makers and other relevant stakeholders at national and international levels in an informed discussion; and 3) inform further analytical work on these matters. The brief builds on previous FAO studies that aimed at understanding the impact of land-based investments in rural land tenure in different countries, including China (FAO, 2020a), as well as the interlinkages between land tenure and climate change (FAO, 2020b).

Land use and management (including land tenure rights) and climate change are intrinsically linked. While land provides the basis for human livelihoods and plays a key role in the regulation of the climate system, human use has directly changed more than 70 percent of the ice-free land surface of our planet causing significant environmental impacts (IPCC, 2020). Further, approximately 23 percent of total anthropogenic greenhouse gas emissions (GHG) that lead to climate change derive

from activities in the sectors of agriculture, forestry and other land uses. Importantly, emissions from agricultural production will likely increase due to projections of population and income growth and changes in consumption patterns around the globe in the coming decades (IPCC, 2020).

Conversely, climate change has an increasing impact on land and terrestrial ecosystems, with important consequences on the way land can be used and, consequently, on land tenure rights. The 2020 Special Report on Climate Change and Land of the Intergovernmental Panel on Climate Change (IPCC, 2020) noted that climate change poses severe risks to human populations and ecosystems due to increases in global mean surface temperature, leading to desertification (e.g. decreased rainfall), land degradation (e.g. soil erosion, vegetation loss), wildfires, permafrost thaw, and challenges to food security (e.g. decrease in crop yields and food supply instabilities). The report further highlights that the most severe projections are focused on tropical regions, including Asia and Africa, with the highest numbers of vulnerable people, and where warming is projected to result in unprecedented climatic conditions by the mid- to late twenty-first century. Impacts include high risks of soil erosion, declines in crop yields, sea-level rise and more extreme weather events. Such factors put at risk the livelihoods of farmers and small-scale food producers, foresters and fisherfolk who depend on land and natural resources. This in turn leads to increased displacement and induced migration, both within countries and across borders, disrupted food chains, and enhanced conflicts. Vulnerable groups such as indigenous and local communities, women, youth, disabled, elderly and poor are considered among those most at risk.

These grave projections also have important consequences for land and resource governance and associated rights across different landscapes. Changing climate

conditions can alter how land and natural resources are accessed and used because they imply geographic shifts in resource productivity, resource scarcity and land-use patterns. Climate change is also considered both a cause and a consequence of land inequality, which has become a growing phenomenon worldwide. Climate change may reduce agricultural yields and force people off the land, and the more sustainable land practices of small-scale farmers and Indigenous Peoples are threatened by increased pressure on water and other natural resources due to large-scale, environmentally damaging monocultures, which are contributors to climate change (International Land Coalition, 2020). In addition, ethically and gender discriminative and insecure land and resource tenure rights often disincentivize rural people from investing in sustainable land management practices and forest conservation, ultimately leading to poor mitigation and adaptation outcomes in the face of climate variability (Quan and Dyer, 2008).

The VGGT emphasize the importance of respecting and protecting, as well as safeguarding, promoting and facilitating the enjoyment of legitimate tenure rights of those likely to be affected by climate change, particularly farmers, small-scale food producers and other marginalized communities (e.g. indigenous and local communities), and groups (e.g., ethnic minorities, women and youth) (VGGT para. 23), and highlight the need to address tenure concerns caused by climate change or natural disasters (VGGT paras. 24 and 25). Important enabling elements in this regard include:

- The recognition and security of all legitimate tenure rights, especially considering that millions of small holder farmers worldwide hold land under customary tenure systems, enjoying socially recognized tenure rights but frequently lacking legally recognized tenure rights; and the mainstreaming of climate change considerations and

responses into land administration and management frameworks (FAO, 2020b).

- Tenure security, also considered a direct investment in disaster recovery ability and resilience, as secure tenure rights and systems render land users less vulnerable for eviction or loss of livelihoods in the case of disasters. Accurate and secure land records offer important protection for tenure rights when populations are displaced by climate hazards and disasters (World Bank, 2020a).
- Land and geospatial systems and the data they contain are critical, but also vulnerable to natural hazards and human interference. Relevant strategies to face this include ensuring resilience of land and geospatial information systems by providing digitalized and electronically stored land records; and sharing this information with disaster risk management agencies and the stakeholders, to enable the use of this valuable data in planning and operations (World Bank, 2020b).
- Measures and policies can achieve positive adaptation and mitigation outcomes, while generating revenue and encouraging the rehabilitation of degraded lands. These actions include: a) land-use zoning, spatial planning, and integrated landscape planning; b) land degradation neutrality; c) land valuation, as a basis for climate disaster-related insurance and compensation schemes; d) securing Indigenous Peoples and customary land tenure regimes, and validating their practices for restoring ecosystems, as much of the world's carbon is stored in the biomass and soil on the territories of customary land users, including Indigenous Peoples; and e) incentives, such as payment for ecosystem services, standards and certification for sustainable production, the use of scientific, local and indigenous knowledge, and collective action) can achieve positive adaptation and mitigation outcomes, all of which can

achieve positive adaptation and mitigation outcomes (IPCC, 2020).

“Climate-proofing” land policies and legislation is important for assessing their ability to address impacts and risks from climate change on tenure governance (Land Portal, 2020). This includes assessing legal and policy frameworks, with a view to:

- identifying how existing land and resource governance regimes – in particular types of production systems – will be affected by various climate change scenarios, to strengthen tenure security, especially in climate change “hotspots”;
- mainstreaming climate change considerations and responsiveness in the mandate of land-related institutions, while also enhancing cross-sectoral coordination between land (use planning and management) and climate change;
- adjusting national land administration and spatial planning systems to have the resources, tools and data to adequately predict climate change risks, respond to (potential and estimated) climate impacts, and report on climate change adaptation and mitigation actions;
- using new digital technologies and resilient land and geospatial information systems (e.g. electronic land records to enhance tenure security in face of hazards and disasters), and reducing related threats to paper records, and targeting land registration efforts to disaster-prone areas;
- applying a climate lens analysis to the landscape level in order to clarify how tenure regimes are affected by climate change, and enable holistic approaches in response;
- promoting interlinked sustainable land management and climate change adaptation and mitigation actions (e.g. removing barriers to freedom of crop choice by farmers and promoting resilient crop alternatives, which can enhance adaptation and resilience);

- identifying approaches to address socio-economic dimensions of climate change regarding land rights and access, such as tenure rights of displaced people, and the gender gap in tenure rights and access, which further aggravates the impacts of climate change on women; and
- ensuring that mitigation actions do not threaten tenure security: for example, the growing interest in “nature-based solutions” in the land sector, in view of the Paris Agreement’s emissions neutrality target, might mean more opportunities for sustainable land and natural resources management, while potentially leading to challenges such as increased land value and pressures on tenure security (see Borrás *et al.*, 2020 for a broader discussion of this issue).

Building on the elements outlined above, this brief aims to analyze the potential climate risks posed to rural tenure rights in China, and to assess the national legal framework’s preparedness to cope with such changes, risks and opportunities for adaptation and mitigation actions.



2. Climate change and tenure rights in China

This section provides an overview over the legal and policy framework of China related to land tenure and climate change, highlighting some gaps and challenges related to its effectiveness.

2.1. Climate change risks and challenges

The Asia and Pacific region is home to one-quarter of the global population, including China, Cambodia, Lao People's Democratic Republic, Myanmar and Viet Nam. This region has the highest proportion of weather-related disasters worldwide, experiencing more than 70 percent of all storms and half of all floods globally (Saghir *et al.*, 2020). Such climate change-related vulnerabilities pose significant threats to agriculture and food security, including drier conditions, higher temperatures, flooding and sea-level rise, and make adaptation a high priority (Saghir *et al.*, 2020).

In this already-challenging context, China faces unique challenges related to climate change. In fact, China is particularly impacted by climate change compared to other countries in the region because it faces elevated climate risks and has particularly high adaptation needs, but it is also considered the highest emitter of GHG globally (accounting for over 26 percent of global emissions) and, therefore, has enormous mitigation challenges. The Chinese agriculture sector was responsible for the emission of over 730 million tons of CO₂ in 2016, as is the fifth-most polluting sector in the country (after electricity, construction, industry and transport, in a downfall from occupying the third position in 2005) (Ritchie and Roser, 2020). China

faces climate risks such as sea-level rise, temperature increases and more erratic rainfall, often experienced as more frequent and extreme weather events such as storms, floods and droughts (Climate Watch Data, 2021). China is also considered the thirty-third-most vulnerable country globally to extreme weather events related to climate change (GermanWatch, 2020). The data used for this classification considers the countries most affected by extreme weather events for the year 2018; in comparison with the previous analysis for the period between 1999 and 2018, China was in the forty-third position; thus, there has been an increase in climate vulnerability over the years. The 2019 Blue Paper on Climate Change, issued by China's Meteorological Administration, demonstrated that the warming trend is persisting, with extreme climate events in China becoming more frequent and intense (China Meteorological Administration, 2019).

Agriculture is considered the most vulnerable economic sector under climate change globally, and also in emerging economies such as China. Chinese agriculture accounts for a small share of total GDP, but is nonetheless a key sector that employs more than 300 million farmers, mostly smallholders, and supports 20 percent of the world's population with only 8 percent of globally sown area, producing 18 percent of the world's cereal grains, 29 percent of the world's meat, and nearly 50 percent of the world's vegetables. China's Second National Communication to the UNFCCC (2012) identifies agriculture among the priority areas of concern regarding climate change (see Laws and policies section). This research indicates that climate change led to impacts such as a net economic loss of USD 121–261 million in China's corn and soybean sectors in 2009 alone. Further, this research shows that in China's main grain-producing regions, more than 50 percent of land is cultivated to at least one crop type that has experienced

a decrease in yield, and that shifts have occurred in the latitude of multiple cropping systems in China, with impacts such as reduced areas for certain crops, and a reduction in the area suitable for single rice cropping by 11 percent (Chen *et al.*, 2014). Such changes have a considerable impact on land uses and lead to threats to tenure security that comes with changes in land classification. Further, annual losses related to natural hazards reached nearly USD 68 billion, representing 0.7 percent of China's gross domestic product in 2013, almost twice the cost in 2012; further, around one-third of China's agricultural land is affected by climatic hazards such as storms, droughts, floods, land subsidence and landslides (ADB, 2015). While vulnerability, as indicated by poverty rates, has declined rapidly in China, levels of risk have remained high due to equally rapid increases in development, which has taken place in urban areas without sufficient protection to natural hazards (World Bank, 2021).

Moreover, sea-level rise has major negative impacts on land tenure, rising at an average rate of 3.3 millimeters per year, resulting in increasing tidal range and coastal erosion disasters, which are a common occurrence on China's more than 18 000 kilometers of mainland coastline and more than 14 000 kilometers of island coastlines (People's Republic of China, 2018). Almost all open muddy coasts and about 70 percent of sandy coasts have suffered erosion to different degrees. By 2050, important coastal economic belts – such as the Pearl River Delta, the Yangtze River Delta and the Yellow River Delta – are highly likely to flood due to rising sea levels, which will aggravate seawater intrusion, coastal erosion and flooding of lowland areas (People's Republic of China, 2018).

Due to the aforementioned climate change issues, significant challenges to farming in different areas of the country can be expected in the future. This highlights the

importance of understanding the potential impacts and solutions to the tenure security of rural people in China.

2.2. China's legal and policy framework

The following subsections provide an overview of the legal and policy framework of China related to land tenure and climate change, highlighting some gaps and challenges related to its effectiveness.

2.2.1 Legal and policy framework on land and forests

China's rural land system went through significant changes since the founding of the People's Republic of China in 1949. Before the revolution, rural tenure was based on a system in which most land was owned by landlords, with user rights provided to farmers. Afterwards, rural lands were expropriated by the government and redistributed among farming households. From the mid-1950s, China began a new system based on collective entities for collective farming, leading to the policy known as the Household Responsibility System, which provided farmers broader land tenure rights (Li, 2003). Ongoing changes in China include a centrally planned economy to that allows private enterprise and capital investment, with 60 percent of GDP currently coming from the private sector, although closely tied to state stakeholders. Such changes are also mirrored in formal land tenure: from the 1980s onwards, led by the 1982 constitution and subsequent revisions, land legislation has been adapted to allow domestic and foreign investors access to land-use rights (Land Portal, 2020).

China's rural tenure regimes are based on public ownership of land. The Constitution of the People's Republic of China (2018 amendment) stipulates that the land property rights system consists of state-owned and collectively owned land. The connotation of state-owned land refers to the socialist public ownership of land

in China, that is, an ownership by all of the people. The State Council, the highest administrative agency in China, has the ability to exercise power on behalf of the state and is empowered to administer land owned by the state. Collective lands are overseen by village committees, which constitute cooperative organizations. Clear land ownership is a common characteristic of both the collective and state rural tenure regimes, which nonetheless have different agricultural goals. The state rural tenure regime originally aimed at securing the national food supply, while the collective rural tenure regime was derived from rural regions in which land was also shared for basic living purposes of rural people (Li *et al.*, 2018).

Another principle worth highlighting is the concept of “ecological civilization”, which is included in the Preamble and Article 89 (State Council Duties) of the Constitution (2018 Amendment), and was subsequently included in other important pieces of environmental legislation (all in Article 1 as a legislative goal) such as the Environmental Protection Law, the Forest Law, the Soil Pollution Prevention and Control Law, the Wildlife Protection Law, and the Solid Waste Pollution Prevention and Control Law. The Rural Revitalization Law (effective from June 1 2021) also lists that as a purpose in Article 3. Ecological civilization is considered a key driver in China’s development path transition for the “New Era”, representing simultaneously a philosophy, a vision, and a compass for a greener future, linking the importance of ecological factors to other elements in the development process (Hanson, 2019).

Land in China has been classified into three broad categories: farm land, construction land and unused land. In 2017, the former Ministry of Land and Resources of China (currently renamed the Ministry of Natural Resources, following an institutional reform in 2018) organized and revised the national Standard

Classification of Land Use (GB/T 21010-2017), which was issued and implemented by China’s General Administration of Quality Supervision, Inspection and Quarantine of the People’s Republic of China and the National Standardization Management Committee. The Current Land Use Classification adopts a two-level classification system, divided into 12 first-class categories and 72 second-class categories. First class includes cultivated land, garden land, woodland, grassland, commercial land, industrial and mining storage land, residential land, public management and public service land, special land, transportation land, water area and water conservancy facilities land, and other lands. Of note, a new category of “wetlands” was added through an Annex B, clarifying which of the second-class categories belong to wetlands. The new standard aims at meeting the needs of ecological land protection and clarifying the types of land for emerging industries, refining the classification of secondary class, which will be fully applied in the forthcoming third national land survey (Government of China, 2017). In 2020, the Ministry of Natural Resources issued the “Guidelines for Classification of Land and Sea for National Land and Space Investigation, Planning, and Use Control (Trial Implementation)”. With an environmental orientation, this document integrates, refines and improves the classification systems under the national Standard Classification of Land Use, as well as urban land-use classification and coastal area use classification documents (Ministry of Natural Resources, 2020).

China’s legal framework on land governance comprises the following key pieces of legislation:

1. the Land Administration Law (promulgated in 1986 and amended in 1988, 1998, 2004 and 2019), which stipulates the fundamental issues of land management, and the relationship

between state-owned land and collectively owned land;

2. the Law on the Administration of the Urban Real Estate (promulgated in 1994 and amended in 2007, 2009 and 2019), which prescribes how land users obtain land-use rights relating to state-owned land for real estate development purposes; and
3. the 2002 Law on Land Contracting in Rural Areas (amended in 2009 and 2018), which stipulates how rural households can obtain the right to land contracting and management relating to collectively owned land in rural communities (China Justice Observer, 2020).

Land-use rights can be granted for certain pieces of state-owned land, whereas in collectively owned land, members of the rural community who are entitled to land ownership can be granted family rights to land contracting and rights of land management. According to the Civil Code of the People's Republic of China, promulgated in 2020, the management rights may be transferred to other village households, leased to non-village households, exchanged, assigned, or transacted "by other means in accordance with the law" (arts. 33–36). On the other hand, the right to contractual management of arable land, forestland, grassland can only be granted to rural community members. Such land-use rights have some restrictions, however, such as rules on land use and time limits, and all organizations and individuals using land must ensure its "rational use". The state may, in the public interest and in accordance with the provisions in legislation, expropriate or request land for its use, providing compensation for such land.

The Land Administration Law was considered a landmark piece of legislation by the land tenure system, addressing three of the major shortcomings related to rural

land tenure security in China: the short or uncertain length of land-use rights, the lack of written land-use contracts and the practice of frequent land readjustments (Li, 2003). The law (in its 2019 version), provides in article 3 the basic principle of land use in China, which is to cherish and give a rational use to the land and true protection for cultivated land. Farmland is strictly protected and should remain stable, and article 35 provides that essential national projects that cannot avoid occupying any basic permanent farmland must be pre-approved by the State Council. Article 25, paragraph 1 stipulates that the usages of land defined in the general plans for the utilization of land will not be changed without approval. This forms the legal basis of China's strict control over usages of land, which stipulates in article 4 a strict control on the conversion of farmland into other uses, especially for construction, to exercise a special protection on cultivated land.

To further protect farmland, the amendment to the Land Management Law stipulates that provinces must allocate and retain 80 percent of arable land, and that governments at all levels are responsible for contributing to annual land-use plans, to which any development must conform (arts. 15–16). Article 44 of the Land Administration Law stipulates the examination and approval procedures for changing the use of agricultural land. Based on the already ongoing and increasing impacts of climate change outlined above, such rigid structures might pose significant challenges for tenure security of farmers. It would be important to ensure that the land-use plans prepared by governments at all levels include climate change risks and planning into account, including on possible land uses, so as to safeguard farmers' tenure rights if farming conditions change over time.

In rural areas, the Law on Land Contract in Rural Areas (2018 Amendment) states that

farmers' land rights include rights to use, profit from, and transfer land contracting and operation rights, the right of autonomy over production operations and disposition of products, and the right to receive the corresponding compensation "for any land taken by the state or collectives for non-agricultural purposes" (art. 17). The law provides that the right to land contractual management in arable land can be given for up to thirty years, for grasslands 30 to 50 years, and for forestland 30 to 70 years, and may be extended for another equal period upon the expiry of the effective term (art. 21). Rural collective committees can allocate land for construction related to public welfare, township and village enterprises, or housing, but any allocation must conform to annual land-use plans, and seek approval from the State Land Administration Bureau. Article 28 sets up a general principle of prohibiting all types of readjustment during the 30-year term with an exception only for "a natural disaster that seriously damaged the contracted land and other special circumstances," under which a small land readjustment may be done subject to the consent of over two thirds of the rural members and approval of relevant administrative authority. In order to safeguard farmers' interests in land from being violated by local officials through various types of compulsory land transactions, the Law emphasizes the principle of "legality, voluntariness and compensation" (art. 38), and provides that county governments issue land rights certificates to farmers to affirm such rights (art. 24). These requirements are key to protecting farmers' land rights because these certificates provide powerful evidence in any dispute resolution process and an effective deterrent to possible violations (Li, 2003), especially in a situation likely to experience climate change disruptions in agriculture production and displacement that is related to climate-induced disasters.

Compulsory acquisition of rural land in China can be divided into two categories:

state expropriation and collective withdrawal of farmers' land rights for non-agricultural development. The Land Management Law (2019 Amendment) authorizes the state to expropriate collectively owned land "for public interests" (art. 2), and allows collective entities to withdraw farmers' land rights "for constructing township or village public utilities or public welfare undertakings" upon government approval (art. 66). Any compulsory taking of land for commercial purposes should be prohibited. Previously, the law did not specifically spell out such "public interests", leaving the state virtually unrestricted power to expropriate land. The 2019 amendment of the Land Administration Law addressed this point, for the first time providing that rural land may be expropriated for purposes of military or diplomacy issues; infrastructure construction organized by the government; government's public welfare undertakings; and the alleviation of poverty and relocation of the poor (art. 45). This can be an important mechanism to address resettlement needs of populations that are at risk of, or are effectively displaced by, climate change.

Compensation is required for both state expropriation and collective withdrawal. Compensation for state expropriations consists of land compensation, resettlement subsidies, and compensation for standing crops and fixtures, based on the annual yield of the land, and not the market value of the land. This standard applies not only to land takings for public purposes such as building roads and schools, but also to land takings for commercial purposes. For collective withdrawal, the law only requires "appropriate compensation" but does not qualify what that means. Complaints about rural populations receiving insufficient compensation in such cases are reported because local governments have a monopoly on urban land conversions and transfers, and can acquire land cheaply from farmers

before selling to developers (Land Portal, 2020).

With regards to forestry, the Forest Law was reviewed and approved at the seventh meeting of the Standing Committee of the Sixth National People's Congress in 1984, and was amended in 1998, 2009 and 2019. The current Forest Law changed the concept of forest management as China's forestry development has undergone a significant change from using forests to harvest timber, to ecological protection (Chen, 2021). The Forest Law emphasizes the role of forests in regulating climate and improving the environment. The Forest Law contains three main goals: 1) preserving woodlands, by delimiting special protected areas of forests (art. 31) to strengthen protection and management; 2) stipulating restrictions on the occupation of forest land, with article 36 providing that the state will protect woodlands, strictly control the conversion of woodlands to non-woodlands, and control total woodland occupation, to ensure that the quantity of woodlands is not in decline; and 3) afforestation and greening, which stipulates the encouragement of afforestation by the state, people's governments and individuals (art. 42).

The 2008 "Guidelines on Fully Promoting Collective Forest Tenure System Reform" were adopted by the Central Committee of the Communist Party of China and the State Council. This document encourages collective forest owners to reassess and reallocate their forest-use rights based on a majority vote – a two-thirds vote either by the entire village assembly or the committee of village representatives. Collectives have the option of reallocating forest rights to individual households, collections of households (so-called "partnerships"), and private contractors; alternatively, they may maintain collective management either at the level of hamlets (i.e. village clusters) or at the full community level (Xu *et al.*, 2020).

2.2.2. Legal and policy framework on climate change

China's 2016 nationally determined contribution does not contain an absolute emissions reduction target, but commits to limit its CO₂ emissions by 2030 at the latest, and to efforts to limit these earlier, and reducing the carbon intensity of its GDP by 60 to 65 percent by 2030 against 2005 levels. It also contains specific targets on the non-fossil fuel share in total primary energy supply to around 20 percent by 2030, and an increase in forest stock volume by around 4.5 billion cubic meters. Moreover, China will continue to adapt to climate change by enhancing mechanisms and capacities to face climate change risks in key areas, such as agriculture, forestry and water resources, as well as in cities, coastal and ecologically vulnerable areas, and to progressively strengthen early warning and emergency response systems and disaster prevention and reduction mechanisms. The National Climate Change Plan (2014–2020) points out that China's response to climate change requires strengthening the protection of forests and wetlands and improving the ability of forests to adapt to climate change.

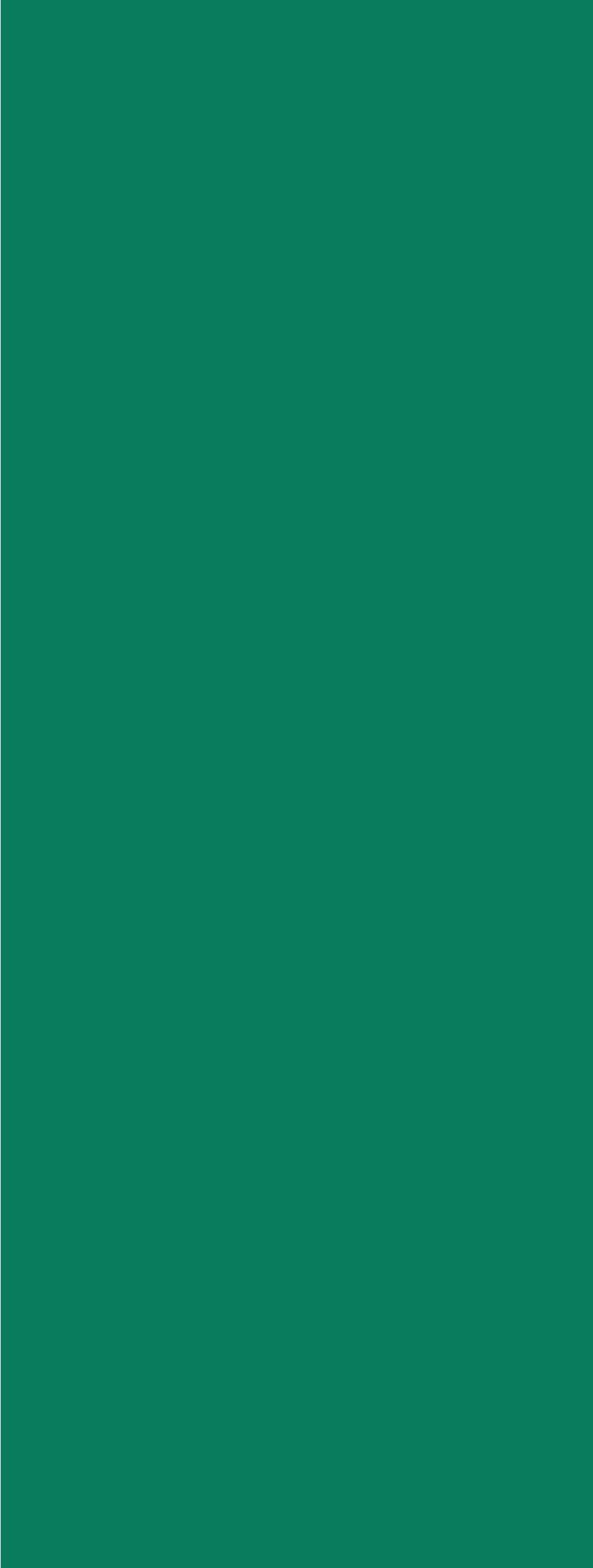
In the 13th Five-Year Plan for National Economic and Social Development of the People's Republic of China, and the National Climate Change Adaptation Strategy (2013–2020), China committed to: 1) proactively adapting to climate change and taking climate change into full consideration in economic and social development efforts (e.g. rural–urban development planning, infrastructure development, and productive force distribution); and 2) improving systems for forecasting and giving early warnings, and its capacity to respond to extreme weather conditions and climatic events. The agriculture sector also had targets of achieving, by 2020, the proportion of crops under comprehensive crop protection to prevent and control major crop diseases and insect pests, to increase water-use efficiency for arable land, and to increase the rate and use of adaptation technologies among the

rural labor force. In September 2020, Chinese leader Xi Jinping announced China's new goal to reach "carbon neutrality" by 2060. A few months later, in March 2021, the Fourth Session of the Thirteenth National People's Congress voted and passed the resolutions on the Fourteenth Five-Year Plan for National Economic and Social Development and the Outline of Vision Goals for 2035. The new plan sets an 18 percent reduction target for "CO2 intensity" and a 13.5 percent reduction target for "energy intensity" from 2021 to 2025. In addition, for the first time, the plan refers to China's longer-term climate goals within a five-year plan and introduces the idea of a "CO2 emissions cap". The Ministry of Ecology and Environment will set targets for nationwide GHG emission controls between late 2021 and early 2022, including the formulation of an "action plan for peak emission by 2030", which requires provincial governments to formulate a "provincial peak emission action plan" by April 2021. This will also include a series of detailed indicators and dual CO2 emission caps – intensity and absolute emissions – on industry, building, transport, agriculture and homes (Carbon Brief, 2021).

Other relevant documents in the area of climate change include the "Guiding Opinions on Integrating and Strengthening Efforts in Climate Action and Ecological and Environmental Protection", issued by the Ministry of Ecology and Environment, which regulates climate mitigation and adaptation, and the "Guiding Opinions of the Ministry of Ecology and Environment, the National Development and Reform Commission, the People's Bank of China and Other Departments on Promoting the Investment and Financing in Response to Climate Change". Although they are not statutory law, these guiding opinions are very important and lead sectoral and provincial legislative work.

With regard to natural disasters, which climate change will exacerbate, China has been building a national system of response.

In 1989, the Chinese government set up the National Disaster Reduction Committee, an interministerial coordination mechanism under the State Council. The committee is responsible for drafting key disaster reduction policies and plans managed by the Ministry of Emergency Management. The committee has led the development of comprehensive national disaster reduction plans, including: a) the Disaster Reduction Plan of the People's Republic of China (1998–2010), b) the National Comprehensive Disaster Reduction 11th Five Year Plan (2007–2010), and the c) National Comprehensive Disaster Prevention and Mitigation Plan 12th Five-Year Plan (2011–2015). In 2019, the committee began preparations for the National Comprehensive Disaster Reduction 14th Five-Year Plan. These plans have reportedly been critical to ensuring that the country's disaster reduction practices are guided by appropriate planning, and are prioritizing prevention measures (World Bank, 2020a). At the same time, a lack of integration between laws and policies covering different aspects of disaster risk management and different disaster types, and natural resource planning and management legislation, has been reported, and there is a need to consolidate disaster-related legislation (ADB, 2015). Due to the likely risk that climate change will exacerbate the frequency and intensity of extreme weather events in China, it is recommended that the country promotes a transition from a reactive approach to a more comprehensive management approach of risk reduction through better physical and organizational planning (World Bank, 2021). Disaster management and response planning are key to ensuring protection of farmers' tenure rights, which might be affected by such disasters.



3. Challenges and opportunities

The National Climate Change Plan (2014–2020) emphasizes the need to increase farmlands, grasslands, wetlands, and forest carbon sinks, strengthen the protection of existing forest resources, and reduce emissions linked to deforestation. Further, in February 2018, “Central Document No. 1” focused attention on the many needs for agricultural and rural revitalization, including the ecological restoration of the countryside (Hanson, 2019). Notably, China’s pledge to achieve the peak of CO₂ emissions before 2030, and to achieve carbon neutrality by 2060, was delivered by Chinese President Xi Jinping, calling for a “green revolution” by adopting vigorous policies and measures in China in addition to its nationally determined contribution (Climate Action, 2020). The announcement was followed by a press conference led by the Director of the Department of Climate Change Response of the Ministry of Ecology and Environment, who elaborated on specific topics within this pledge, highlighting that as of the end of 2019, China’s carbon intensity was reduced by more than 48 percent, including through measures such as an increase of forest carbon sinks. It was announced that the ministry would implement a fourth batch of national ecological civilization (see para. 2.2.1) demonstration cities and counties, and undertake other measures such as providing support for implementing and enforcing the Soil Pollution Prevention and Control Law, including through the implementation of the agricultural land classification management system, and manage access to construction land to prevent human settlement risks. The period covered by the 14th Five-Year Plan is considered to be a critical one in terms

of the government achieving its carbon neutrality goal. The plan itself is considered a mechanism to promote economic development and preserve the ecological environment, and promote fundamental transformation of the economic, industrial, and energy structures of the country (Government of China, 2020). Hence, there is momentum in the country to address climate change mitigation and adaptation challenges linked to rural land, and increased attention should be paid to enhancing security of land tenure rights according to VGGT principles.

Integrated and modern land information systems become even more relevant in the context of preventing and managing climate risks, as well as implementing, monitoring and reporting adaptation and mitigation actions. They are also important for forestry inventories, GHG inventories, and reporting under the Enhanced Transparency Framework of the Paris Agreement, under the Sustainable Development Goals and the Sendai Framework on Disaster Risk Reduction. Furthermore, linking integrated land information systems with climate services can help with managing risks of climate variability and climate change, managing food systems and resources, advancing payment for environmental services and risk transfer mechanisms, and contributing to food security information and emergency response. The lack of a comprehensive land registration system, however, has been noted as a major challenge in China. Despite the fact that the Law on Land Contract in Rural Areas requires a) registering rural land-use rights capabilities with regards to an administrative organization assigned with such a responsibility, and b) competent personnel with skills for registering rural land-use rights, these have historically been reported as limited (Li, 2003). Land titling projects have been conducted across the country since 2008, with commitment to sustainable land registration from the

highest levels of China's central government. The Rural Land Registration and Certification Pilot Program started in 2005 to devise action plans related to the nation's land reform policies and promote the use of satellite technology for land-use registration (Rabley and Yuen, 2009). Efforts to improve this situation have been made in recent years, such as the 2014 Interim Regulation on Real Estate Registration, which requires that various types of land ownership should be registered (art. 5); and the 2019 Interim Measures for the Uniform Registration of Natural Resources, based on the real estate registration system, but from a natural resource perspective. These efforts have taken place in the context of China's ecological civilization reform and ecological redlines policy, first proposed in 2011, and subsequently enshrined in the Environmental Protection Law of 2015. In 2017, the Chinese government issued the "Opinions on Delineation and Strict Management of Ecological Conservation Redlines" to implement a "redline policy" for ecological conservation nationwide, which is considered an improvement in its system of protected areas to promote the conservation and sustainable use of natural resources (Gao *et al.*, 2020).

Women's rights to land in China have, in theory, always been equal to those possessed by men, but the combination of household contracting and local patriarchal practices in most rural areas has meant that women have been disproportionately disadvantaged by the practice of land readjustment (Li, 2003). The Law on Land Contracting in Rural Areas not only reiterates the principle of equality between men and women with respect to the allocation of land rights, but also provides explicit protection of rural women from losing their land rights through land readjustment. Article 31 of the law states that the contract-issuing party (the collective entity) of a woman's original residence may not take back her land share when she marries, divorces or becomes

widowed and moves to a new residence unless she receives an allocation in that new residence. This provision greatly enhances tenure security for women. It is noted that in practice, however, to put this rule into operation, subsidiary legislation is required. For example, in order to effectively exercise their rights to the contracted land located in the original residence, women must be able to partition their land shares from their household landholdings. The existing law is not clear with respect to the ability to partition joint property such as household land rights (Li, 2003). Further, it is reported that as of 2019, over 80 percent of women do not have their name registered on land rights certificates (Jianbing, 2019). With respect to the above-mentioned concurring factors occurring in China, climate change is expected to exacerbate the challenges faced by rural women, making it a vital issue to address rural women's tenure security.

The emerging forestry carbon sink trading system in China provides a channel to address the challenges of climate change, while also pointing to the need to clarify issues related to forest and carbon tenure. The Integrated Reform Plan for Promoting Ecological Progress points out the establishment of an effective mechanism for increasing carbon sinks. The General Office of the State Council issued the Opinions of the General Office of the State Council on Improving the Collective Forest Right System in November 2016. It is pointed out that efforts should be made to resolve conflicting goals between ecological preservation, the interest of forest farmers and the reduction of emissions from carbon sequestration (Chen, 2021).



4. Recommendations

In order to safeguard tenure rights from the risks and challenges posed by climate change, the following recommendations can be made:

- Ensure climate change considerations are integrated in land-use plans developed by the different levels of government for rural lands, to take into account possible changes in land use in regard to ever-changing climate conditions and increasing climate risks, and appropriate responses.
- Strengthen the protection of rural women's tenure rights, which might be put into further stress due to factors such as natural disasters, the frequency of which will increase due to climate change.
- Build on existing pilots and enhance the system of land registration, aiming towards a comprehensive, digital land information system that ensures security and accuracy of tenure rights, and is resilient to natural disasters.
- Enhance disaster risk management and reduction legislation to protect tenure rights from climate-related risks and offer a proactive approach to avoiding impacts from such risks;
- Ensure resettlement and livelihood restoration programmes are available, including the safeguarding of tenure rights in the face of natural disasters, and mechanisms to relocate populations displaced by the loss of their land.
- Ensure that climate mitigation initiatives do not pose threats to rural land tenure security. The expansion of forest lands to build up forest carbon sinks might put additional pressure on tenure rights in forest areas; hence, there is a need to further clarify tenure issues that might arise from the development of carbon

offsets and carbon markets linked to the land, and to agricultural and forestry sectors. Further, in the context of China's "return farmland to forest" programme, ensure that land-use rights of vulnerable people and local communities are protected.

- Ensure that tenure rights are properly incorporated in the implementation of climate change plans, in particular the newly declared climate neutrality goal, and related measures that might be implemented in the land, agricultural and forestry sectors.



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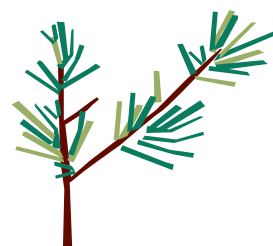
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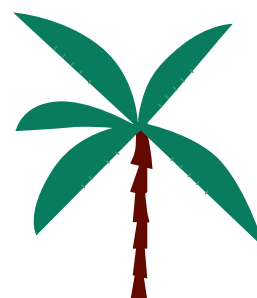
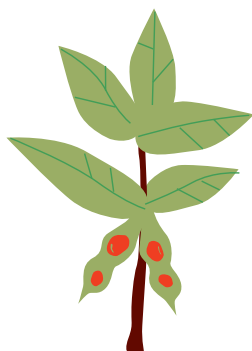
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