

Integrated Reform Plan for Promoting Ecological Progress

This plan has been formulated for putting systematic and complete systems for improving the ecosystem in place more quickly; achieving faster ecological progress; and making the reform for promoting ecological progress more systemic, more holistic, and better coordinated.

I. A General Description

1. The thinking behind the reform

It is crucial to fully implement the guiding principles from the 18th National Congress of the Communist Party of China (CPC) and the second, third, and fourth plenary sessions of the 18th CPC Central Committee; follow the guidance of Deng Xiaoping Theory, the Theory of the Three Represents, and the Scientific Outlook on Development; thoroughly put into practice the guiding principles from the major speeches of General Secretary Xi Jinping; act in accordance with the decisions and plans of the CPC Central Committee and the State Council; adhere to the fundamental state policy of conserving resources and protecting the environment; and give high priority to resource conservation, environmental protection, and the restoration of nature. Based on the fundamental context of China being in the primary stage of socialism and in the particular characteristics new to China in the present phase, and in order to build a beautiful China, handle correctly the relationship between humankind and nature, and solve serious ecological and environmental problems, it is essential to safeguard China's ecological security, improve the environment, ensure that resources are used more efficiently, and step up efforts to promote the formation of a new pattern of modernization in which humankind develops in harmony with nature.

2. The ideas

The idea is to:

Respect, protect, and stay in tune with nature. Ecological conservation is vital not only to sustained, healthy economic development, but also to political and social progress, and must therefore be given a position of prominence and incorporated into every aspect and the whole process of economic, political, cultural, and social development.

Integrate development and conservation. It is necessary to remain committed to the strategy of treating development as being of the utmost importance to China. Development is good only when it is green, circular, and low-carbon. There should be the right balance between development and conservation.

The intensity of development should be brought under control on the basis of functional zoning and spatial planning should be adjusted to ensure that development and conservation are coordinated and reinforce each other so we leave behind a comfortable place that future generations can call home with blue skies, green lands, and clear waters.

Foster an understanding that lucid waters and lush mountains are invaluable assets. Fresh air, clean water sources, beautiful rivers and mountains, fertile land, and biological diversity form an ecological environment that is essential to human survival. As development is a top priority for China, it is imperative to protect forests, grasslands, rivers, lakes, wetlands, seas, and other natural ecosystems.

Cultivate respect for the value of nature and natural capital. Natural ecosystems have value; the protection of nature is a process of increasing the value of nature and the value of natural capital, and means the protection and development of the productive forces. Protection efforts should, then, be adequately rewarded and come with economic returns.

Seek equilibriums in China's territorial space. To move forward with development, it is necessary to find the right balance between population, economy, resources, and the environment and ensure that the population, the industrial structure, and the economic growth of a region do not surpass its environmental capacity and the carrying capacity of its water and land resources.

See that mountains, waters, forests, and farmlands are a community of life. Based on the integrity and systemic nature of ecosystems and the way they work, it is necessary to take into consideration all the elements of the natural ecosystem - both hills and their surrounding areas, both above and under the ground, both land and sea, both upper and lower river basins -and work to protect them in their entirety, restore them systematically, and take a comprehensive approach to their governance in order to preserve ecological balance by strengthening the ability of ecosystems to circulate.

3. The principles

Ensuring that the reform moves in the right direction. China's market mechanisms need to be improved, and the government should make better use of its leadership and regulatory roles. Those in the business sector should bring their own initiative into play and exercise self-restraint. Social organizations and the general public should participate and play a supervising role in ecological conservation.

Maintaining the public nature of natural resource assets. New property rights systems should be created for natural resources. Ownership rights should be clarified. There should be a distinction between ownership rights and the authority to manage. Powers and regulatory responsibilities of the central and local governments should be divided more appropriately. Everyone should be entitled to benefit from state-owned natural resource assets.

Integrating environmental governance for rural and urban areas. Continued efforts should be made to strengthen urban environmental protection and industrial pollution prevention and control. The rural coverage of ecological and environmental protection efforts should be expanded. Effective systems and mechanisms for rural environmental governance should be established. The development of pollution prevention and control facilities should be stepped up in rural areas, and related funding should be increased.

Attaching equal importance to incentives and restraints. It is imperative to develop interest-related mechanisms for promoting green, circular, and low-carbon development, and at the same time practice strict prevention at the source of pollution, strict regulation over operations, strict compensation for environmental damage, and accountability for those responsible in order to effectively restrain all types of market entities and, step by step, make ecological conservation efforts more market-, law-, and procedure-based.

Combining China's own independent efforts with international cooperation. Strengthening ecological conservation and environmental protection is something China is doing of its own accord, though at the same time it needs to deepen exchange and practical cooperation with other countries, borrow from their advanced technology and their valuable experience in institution building, take an active part in global environmental governance, and assume and perform its international responsibilities as a large developing country.

Integrating piloting first with overall coordination. It is necessary, in accordance with the unified plans of the CPC Central Committee and the State Council, to deal with the easier parts first, move forward step by step, and launch each reform when conditions are ripe to do so. On the basis of the fundamental direction laid out in this plan, encouragement should be given to local governments to explore and experiment boldly in light of their own local conditions.

4. The objectives

This reform is designed to establish a systematic and complete institutional framework composed of eight systems for promoting ecological progress with clearly defined property rights, diversified participation, and equal focus on

incentives and restraints by 2020. It is also designed to modernize China's governance system and capacity for governance in the field of ecological progress and usher in a new era for socialist ecological progress. These eight systems include a system of property rights for natural resource assets, a system for the development and protection of territorial space, a spatial planning system, a system for regulating total consumption and comprehensive conservation of resources, a system for payment-based resource consumption and compensating conservation and protection efforts, the environmental governance system, the market system for environmental governance and ecological preservation, and the system for evaluating officials' ecological conservation performance and for holding those responsible for ecological damage to account.

A system of property rights for natural resource assets will be established, according to which ownership is clearly defined, powers and responsibilities are explicit, and regulation is effective, in order to ensure there are owners for natural resources and ownership is clear.

A system will be built on the basis of spatial planning for the development and protection of territorial space, drawing on regulation of its uses as the main approach, with a view to stopping the over-use of quality cropland and ecological space, ecological damage, and environmental pollution caused by disorderly, excessive, and scattered development.

A spatial planning system will be designed, with the main purpose of strengthening the spatial governance and improving its structure, which is nationally unified and better connected between different departments of government, and according to which management is divided between governments at multiple levels, in an effort to eliminate overlapping and conflicting spatial plans, the overlap and duplication of responsibilities between departments, and the issue of local authorities frequently changing their plans.

An effective, standardized, and strictly managed system that achieves complete coverage will be established for regulating total consumption and comprehensive conservation of resources, in order to address inefficiency and serious waste in resource consumption.

A system for payment-based resource consumption and compensating conservation and protection efforts will be established. The system will reflect market supply and demand, resource scarcity, the value of nature, and the need for intergenerational compensation, in order to address the problems of excessively low prices for natural resources and their products, the cost of production and development being lower than the social cost, and inadequate incentives for ecological conservation efforts.

An environmental governance system which is oriented toward improving the environment, and which incorporates unified regulation, strict law enforcement, and multi-party participation will be developed in an effort to deal with weak capacity for pollution prevention and control, overlapping regulatory functions between government departments, powers not being in accord with responsibilities, and the cost of law violations being too low.

A market system which allows economic levers to play a greater role in environmental governance and ecological conservation will be developed, with a view to addressing the slow development of market entities and market systems and low rates of public participation in ecological conservation.

An evaluation and accountability system will be developed to assess the performance of officials in ecological conservation and hold to account those responsible for ecological damage. This system will be designed to be fully reflective of resource consumption, environmental damage, and ecological benefits, and is to be built so as to correct the shortcomings in performance evaluations, narrow the gaps in responsibility systems, and improve poor accountability for ecological damage.

II. Improving the System of Property Rights for Natural Resource Assets

5. Establishing a unified system for determining and registering ownership

The owners of natural resource assets of all types throughout all Chinese territorial space will be determined in accordance with the principles that all natural resources in China are publicly owned and all property rights are legally prescribed. Ownership of all natural ecological spaces including water flows, forests, mountains, grasslands, uncultivated land, and tidal flats will, according to a unified system, be determined and registered. Clear lines will be gradually delineated to distinguish between assets owned by the whole people and assets collectively owned, ownership by the whole people and ownership operated by different levels of government, and between different collective owners. The rule of law will be strengthened in the determination and registration of ownership.

6. Establishing a system of property rights for natural resources within which rights and responsibilities are explicit

A list of rights will be developed to specify the rights of ownership for all types of natural resource assets. The relationship between ownership rights and use rights will be properly dealt with. New forms of collective ownership and ownership by the whole people will be created. With the exception of natural

resources which are ecologically important, the ownership rights and use rights for all other natural resources can be separated. It will be made clear who has the right to possess, use, benefit from, or dispose of natural resources, and corresponding rights and responsibilities will be clarified. The right to sell, transfer, and rent out use rights, as well as the right to use them as collateral, as the basis of a loan guaranty, or to gain an equity stake, will all be suitably expanded. The roles of owners and users of land on which state-owned farms, forests, and pastures are located will be clearly defined. A complete system for sale will be established covering all types of natural resource assets owned by the whole people, while the uncompensated transfer of rights or their sale at excessively low a price are to be strictly forbidden. We will draw up an integrated plan for strengthening efforts to develop a natural resource asset exchange.

7. Improving the state system of management for natural resource assets

In accordance with the principles of separating owners from regulators and assigning the responsibility for one matter to one single department, the currently diffuse duties and responsibilities of ownership of natural resource assets owned by the whole people will be integrated, and one body will be established to carry out the unified exercise of ownership rights for all types of natural resources owned by the whole people, such as mineral deposits, water flows, forests, mountains, grasslands, uncultivated land, marine areas, and tidal flats, and take responsibility for the sale of these natural resources.

8. Exploring the establishment of a system for exercising ownership rights at different levels

Research will be conducted to explore how a system can be put into practice in which, in accordance with the type of resource and its importance in relation to the ecological environment, the economy, and national defense, the central and local governments act as the agents of the owners of natural resource assets owned by the whole people, in order to achieve both efficiency and equity. Resources and territorial space for which the ownership rights are owned by the whole people and directly exercised by the Central Government will be distinguished from those for which the ownership rights are owned by the whole people and exercised by local governments. The Central Government will primarily exercise directly the ownership rights for petroleum and natural gas, valuable and rare mineral resources, key state-owned forests, major rivers and lakes, trans-boundary rivers, ecologically important wetlands and grasslands, marine areas, tidal flats, rare and endangered species of wild fauna and flora, and some national parks.

9. Launching trials for determining property rights for water flows and wetlands

Explorations will be made into establishing a water ownership system. Trials will be carried out in determining ownership of bodies of water, coast lines, and other aquatic ecospace. On the basis of respecting the systematic nature and integrity of water ecosystems, the ownership rights, use rights, and allowable volumes for water resource use will be delineated. Trials will be launched in Gansu, Ningxia, and other areas for determining the ownership of wetlands.

III. Establishing a System for the Development and Protection of Territorial Space

10. Improving the functional zoning system

National- and provincial-level planning of functional zones will be coordinated. Regional policies which are based on the functional zones will be improved. On the basis of the different functions- urban areas, primary production areas for agricultural products, or key ecosystem service areas - adjustments and improvements to policies regarding finance, industry, investment, population flow, land to be used for construction, resource development, and environmental protection will be stepped up.

11. Improving the regulatory system for the use of territorial space

The top-down land-use indices control system will be simplified and the method of allocating indices based on administrative district and baselines for land use will be adjusted. Development intensity indices will be broken down and assigned to the county-level administrative districts as binding quotas to control the total amount of land used for construction purposes. Land use regulation will be extended to all natural ecological spaces, ecological redlines will be defined and strictly observed, and arbitrary changes to land use will be strictly prohibited. Efforts will be made to protect against ecological redlines being crossed by unreasonable development and construction activities. The monitoring system for all territorial space will be improved and a longitudinal approach will be used to monitor changes within China's territorial space.

12. Establishing a national park system

The protection of important ecosystems will be strengthened to ensure their sustainable use. The system of departments independently setting up their own nature reserves, historical and scenic sites, cultural and natural heritage sites, geological parks, and forest parks will be reformed. These protected areas will be reorganized by function and the scope of national parks will be determined as appropriate. National parks will be under more stringent protection: with the exception of improvements to the facilities used by local

people in their everyday lives and work and nature-based research, education, and tourism which do not harm ecosystems, other types of development and construction will be prohibited so as to protect the authenticity and integrity of the natural ecological environment and natural and cultural heritage. Guidance on national park trials will be strengthened, and on the basis of these trials, research will be carried out into designing an overall plan for establishing a national park system. A permanent mechanism will be created for the protection of rare and endangered species of wild plants and animals.

13. Improving the system for regulating natural resources

Duties and responsibilities related to regulation of use, which are currently spread among different departments, will be gradually concentrated within a single department. This department will then perform all use-related regulatory duties and responsibilities for all territorial spaces.

IV. Establishing a Planning System for Territorial Space

14. Formulating plans for territorial space

All types of current spatial plans formulated by different departments will be integrated into unified spatial plans, which will be all-encompassing. The new plans will be the guide for the development of the country's territorial space, and the spatial blueprints for sustainable development; they will be the fundamental basis for all types of development and construction programs. Spatial plans will be divided into national, provincial, and municipal (or county) levels (spatial plans for cities which are divided into districts will be formulated for the district level). Research will be conducted into how to establish unified and standardized mechanisms for formulating spatial plans. An environmental impact assessment system will be set up to be used in spatial planning. Provincial-level spatial planning trials are encouraged. A spatial plan will be developed for the Beijing-Tianjin-Hebei region.

15. Integrating municipal-level (county-level) plans

Cities and counties will be supported in combining different types of plans into a single spatial plan, such that gradually, there will be one plan - one blueprint - per city or county. Municipal or county spatial plans should classify land using a unified standard, and, in accordance with the relevant functional zoning and the requirements of the provincial-level spatial plan, should delineate production space, living space, and ecological space, demarcate the development boundaries of urban construction areas, industrial areas, and rural living areas, as well as the boundaries of protected areas of arable land, woodlands, grasslands, rivers, lakes, and wetlands, and strengthen

coordinated planning for urban subsurface space. More effective guidance will be given to cities and counties regarding their trials for plan integration. Research will be undertaken into developing guidelines and technical standards for the formulation of municipal-level (county-level) spatial plans, which will then serve as experience that can be applied elsewhere.

16. Developing new approaches for formulating municipal-level (county-level) spatial plans

We will explore how best to standardize procedures for formulating municipal-level (county-level) spatial plans, public participation will be expanded, and planning will be made more effective and transparent. Those areas piloting municipal-level (county-level) spatial plans are encouraged to integrate planning departments, making a single department responsible for formulating the spatial plan for that municipality or county; and they may form a planning appraisal committee of experts and representatives of the relevant fields. Prior to the formulation of a plan, a resource and environmental carrying capacity assessment must be carried out, and the results of the assessment should serve as the fundamental basis of planning. During the process of formulation, efforts should be made to solicit opinions of those from relevant sectors; the draft of the plan should be published in full so that the suggestions and comments of local residents can be extensively solicited. After evaluation and approval by the planning appraisal committee, the plan must be deliberated and passed by the local people's congress, then reported to the relevant government department at the next level up to be placed on record. The finalized plan should include the text of the plan along with precise maps and images, and should be made available to the public through websites and other forms of local news media. Local residents are to be encouraged to oversee the implementation of the plan and report any development and construction activities that violate it. The local people's congress and its standing committee will hear reports at regular intervals on the implementation of the plan, and will hold the local government accountable for violations of the plan.

V. Improving the Systems for Total Resource Management and Comprehensive Resource Conservation

17. Improving the systems for providing the strictest possible protection for farmland and securing the economical and intensive use of land

The system for the protection of basic cropland will be improved and a redline below which the area of China's permanent basic cropland must not fall will be established. To ensure that the area of basic cropland are not diminished, its quality does not deteriorate, and it is not converted to any other uses, the duty

of basic cropland protection will be assigned to farming households and every piece of this cropland will be captured through photo-imaging and entered into the national cropland protection database, and its strict protection will be enforced. With the exception of unavoidable cases as specified by law in which basic cropland has to be used as the site of key national projects, no basic cropland may be used for construction purposes. Efforts will be redoubled to grade and monitor as well as maintain and improve the quality of cultivated land. The system for offsetting the occupation of cultivated land for purposes other than cultivation will be improved. A cap will be set on total cultivated land that can be used for new construction projects. It will be made sure that equivalent land is offset ahead of occupation and that the replacement land is of equal or higher grade than the cultivated land to be occupied. A cap will also be on total land that can be occupied for construction purposes, management will be instituted to reduce the amount of cultivatable land that is used as such, and incentive and constraint mechanisms will be established to encourage more economical and intensive use of land. Reasonable annual plans will be made for the use of land, adjusting the structure of land used for different purposes and making the best use of land that has already been made available.

18. Improving the system for the strictest possible management of water resources

To give priority to saving water, achieve harmony between development and water conservation, carry out systemic governance, and ensure that both government and market play their respective roles, the system for controlling total water usage will be improved to ensure water security. Efforts will be accelerated to formulate water allocation plans for major river basins, strengthen coordination between provincial-level governments, and improve the system of targets for control of total water usage at the provincial, municipal, and county levels. Effective mechanisms will be established to ensure economical and intensive water usage. More work will be done to adjust the way water resources are used and improve their allocation. The system for evaluating the impact of plans and construction projects on water resources will be improved. Efforts will be made to draw principally on pricing and taxation to gradually establish systems for controlling and instituting quota-based management of the volume of water used in irrigation, and for controlling and instituting quota-based management of the planned water usage of high-water-consuming industrial enterprises. In regions seriously affected by water scarcity, water quotas will be used as a threshold for market entry and the development of high-water-consuming projects will be strictly controlled. The protection and environmental restoration of areas producing aquatic products will be strengthened, their aqua culture will be controlled, and mechanisms will be established for the protection of aquatic plant and animal

life. Regulation of water functional zones will be improved and systems for promoting the utilization of alternative water resources will be established.

19. Establishing a system for total energy consumption management and energy conservation

High priority will be given to energy conservation, the control of energy intensity will be strengthened, and the responsibility system and the system of incentives for meeting energy conservation targets will be improved. Improvements will be made to the energy statistics system. The management system for energy conservation by major energy-consuming organizations will be improved, and a mechanism for making voluntary pledges on energy conservation will be implemented on an explorative basis. The system of energy conservation standards will be improved to make timely updates to energy efficiency standards for energy-consuming products, limits on energy consumption for energy-intensive industries, and energy efficiency standards for buildings. A reasonable target will be established for total national energy consumption and broken down and assigned to the provincial-level and major energy-consuming organizations. The mechanism for promoting the use of energy-saving, low-carbon products, technologies, and equipment will be improved and lists of technologies will be issued at regular intervals. Supervision over energy conservation will be strengthened. Stronger support will be provided for the development of renewable energy sources, and subsidies for all fossil fuels will be phased out. A system for controlling total national carbon emissions and a mechanism for breaking down the responsibility for implementation will be gradually established. A mechanism for effectively increasing forest, grassland, wetland, and ocean carbon sinks will be set up. China's involvement in international cooperation on responding to climate change will be strengthened.

20. Establishing a system for protecting virgin forests

All virgin forests will be placed under protection. A national timber forest reserve system will be established. Government administration will be gradually separated from the management of state-owned forests, and the public benefit forest protection and management system will be improved for state-owned forestry farms drawing principally on service procurement. The collective forest tenure system will be improved. Tenure contracts for collective forests will be kept stable, the operations allowed under these contracts will be expanded, and the systems by which forest tenure rights are used as collateral for loans and tenure rights are transferred will be improved.

21. Establishing a system for protecting grassland

The system by which collective grassland is contracted out for operation to individual households will be kept stable and improved to ensure that the plot and area of every piece of grassland contracted out is measured accurately, contracts are signed, and contracting certificates are granted. Proper procedures will be introduced for the transfer of grassland under such contracts. A system for protecting basic grassland will be put into effect to ensure that the area of basic grassland does not diminish, its quality does not deteriorate, and it is not converted for any other use. The subsidy and award mechanisms for the ecological conservation of grassland will be improved. Grazing on certain areas of grassland will be banned or temporarily suspended, rotational paddock grazing will be introduced, and efforts will be made to strike a balance between grass and livestock. Oversight over their view and approval of grassland requisitions will be strengthened and the use of grassland for any purpose other than animal husbandry will be strictly controlled.

22. Establishing a system for protecting wetlands

All wetlands will be placed under protection, and the unauthorized requisition or occupancy of wetlands of international importance, and those of national importance, and wetland reserves will be banned. The services of wetlands will be determined, their protection and utilization will be standardized, and a mechanism for the ecological restoration of wetlands will be established.

23. Establishing a system for closing off desertified land for protection

Contiguous areas of desertified land for which conditions are not currently in place to carry out anti-desertification programs will be designated as closed-off protection zones. Systems for strict protection will be established, construction of infrastructure needed to close off and protect and manage such zones will be stepped up, desertified land governance will be strengthened, and vegetation will be increased. The appropriate development of the sand industry will be encouraged. The mechanisms for protection and management drawing principally on service procurement will be improved. New approaches that combine development with governance will be explored.

24. Improving the system for developing and protecting marine resources

Marine functional zones will be established, the major functions of offshore waters and islands will be determined, and efforts will be made to guide, control, and standardize behavior related to the use of oceans and islands. A system will be introduced to control total sea reclamation, imposing binding limits on the total area of ocean over which reclamation can take place. A system will be established for maintaining natural coastlines. The system for

managing total marine fishery resources will be improved. The systems for instituting fishing off-seasons and bans on fishing will be strictly enforced. Limits on offshore fishing will be imposed. The scale of offshore and mudflat aquaculture will be controlled.

25. Improving the system for managing the development and utilization of mineral resources

A system for the investigation and evaluation of the development and utilization of mineral resources will be established. The ascertainment and registration of mineral resources and registration management of their pay-per-time occupation will be strengthened. A mechanism for the intensive development of mineral resources will be established, the concentration of enterprises in mining areas will be increased, and large-scale development is encouraged. National standards including those regarding the mining recovery rate of major mineral resources, ore dressing recovery rate, and the comprehensive utilization rate of mineral resources will be improved. The economic policies for encouraging better utilization of mineral resources will be refined. A system will be established to make available to the public information on whether mining enterprises are utilizing mineral resources efficiently and comprehensively, and a system will be set up for blacklisting those breaking mining operation rules. The mechanism for introducing industry-based approaches will be improved to support the recycling of major mineral resources. The systems for protecting the geological environment in mining areas and reclaiming deserted areas will also be improved.

26. Improving the system of resource recycling

An effective system will be established to record resource-output ratio statistics. The extended producer responsibility (EPR) system will be put into effect, pushing producers to perform their responsibilities for take-back and disposal of their end-of-life products. A system will be established to utilize farming, livestock, and aquaculture waste and achieve the organic integration and circular development of farming, husbandry, and aquaculture. The establishment of a system for making the separation of waste compulsory will be accelerated. A list of renewable resources to be recycled will be worked out and the mandatory recycling of composite packaging, batteries, agricultural plastic sheeting, and other low-value waste will be required. Efforts will be accelerated to develop standards for the recycling and reuse of resources by type. A system for promoting the use of products and raw materials made of recycled resources will be established to require enterprises consuming related raw materials to use a certain proportion of recycled products. The system for restricting the use of single-use disposable products will be improved. Taxation policies will be implemented and improved to promote the

comprehensive utilization of resources and the development of the circular economy. A list of circular economy technologies will be formulated and policies such as priority government procurement and discounted interest on loans will be implemented.

VI. Improving the System for Payment-Based Resource Consumption and Compensating Conservation and Protection Efforts

27. Accelerating price reform for natural resources and their products

In line with the principles of cost-benefit balancing and based on full consideration of society's ability to tolerate price increases, a cost assessment mechanism for natural resource exploitation and consumption will be established to incorporate the interests of resource owners and any ecological and environmental damage into the pricing mechanism for natural resources and their products. Price regulation over natural monopolies will be strengthened. A system will be created for overseeing and reviewing the pricing cost and a mechanism will be established for making pricing adjustments. Procedures for decision-making on pricing and the information disclosure system will be improved. The overall price reform of water for agricultural purposes will be moved forward. A system of progressive pricing for water will be put into full practice for non-household water consumption that exceeds plans or quotas for water consumption, and a system of tiered pricing for urban household water consumption will be fully implemented.

28. Improving the payment-based system for land use

The scope of state-owned land that is operated on the basis of a payment-based use system will be expanded. The proportion of land for which use rights can be transferred through bidding, auction, or listing will be enlarged. Less land will be allocated for non-public use. Income and expenditures related to selling use rights for state-owned land will be incorporated into public budgeting. Industrial-land supply methods will be reformed and improved, with the implementation of flexible transfer periods, long-term leasing, lease-then-sell arrangements, and lease-and-sell arrangements being explored. The mechanisms for setting and appraising land prices will be improved. The system of grade-based pricing for land will be refined. The relationship of land-related transaction and lease expenses with taxes and fees will be straightened out. An effective regulatory mechanism will be put in place to achieve reasonable price parity between industrial-use and residential-use land. Prices of industrial-use land will be raised, and the proportion of industrial-use land will be reduced. Methods such as land contracting and leasing out will be explored to improve the payment-based use system for state-owned land for agricultural use.

29. Improving the payment-based system for mineral resource use

Improvements will be made to the system for the sale of mining rights, and means suited to a market economy and the nature of the mining industry will be established for the sale of prospecting and extraction rights. In principle, the sale of these rights will be market-oriented, and the income and expenditures related to the sale of state-owned mineral resources will be incorporated into public budgeting. The property rights of owners, investors, and operators during the processes of payment-based acquisition, possession, and exploitation will be clarified, and research will be conducted into the development of a system of national premiums for the use of mineral resources. Standard fees for the use of prospecting and extraction rights, and minimum investment in mineral prospecting will be adjusted. Progress will be made in building a nationally unified mining rights exchange, and efforts in information disclosure on the sale and transfer of such rights will be intensified.

30. Improving the payment-based system for use of sea areas and offshore islands

A mechanism will be created for adjusting use fees for sea areas and uninhabited islands. An effective system will be established for the sale of use rights for sea areas and uninhabited islands through bidding, auction, and listing.

31. Accelerating reform of resource and environmental taxes and fees

The taxes and fees for natural resources and their products will be straightened out, their respective purposes will be clarified, and the appropriate scope of taxation regulation will be defined. Faster progress will be made in introducing price-based on resources. The scope of resource taxes will be gradually expanded to cover the use of all kinds of ecological spaces. A trial reform will be carried out in parts of northern China to levy a resource tax on groundwater. The development of legislation on environmental protection tax will also be accelerated.

32. Improving the ecological compensation system

Explorations will be made into establishing a diversified compensation mechanism, transfer payments to major ecological functional zones will be increased step by step, and the incentive mechanism that links ecological protection performance with fund allocation will be improved. Measures will be drawn up for implementing a mechanism, principally for local compensation, and supported by additional funds from the central budget, by which local

governments compensate each other for ecological or environmental damage and ecological conservation efforts. Local governments are encouraged to launch ecological compensation trials. Efforts will continue in carrying out the ecological compensation pilot initiative for the Xin'an River ecosystem. Help will be given to carry out trans-regional ecological compensation pilot initiatives in the Beijing-Tianjin-Hebei water source conservation area, in areas along the Jiuzhou River in Guangxi and Guangdong, and in areas along the Ting and Han rivers in Fujian and Guangdong. Explorations will be made into carrying out pilot ecological compensation initiatives in the Yangtze River basin- an environmentally sensitive region.

33. Improving the mechanism for utilizing ecological protection and restoration funds

Given the need for systematic governance of mountains, forests, farmland, rivers, and lakes, the measures for utilizing and managing relevant funds will be improved and existing policies and channels will be integrated. At the same time as efforts are being made to comprehensively improve the conditions of rivers throughout their entire drainage basins, more funds will be spent on the protection and restoration of national ecological-security shields, such as the Qinghai-Tibet Plateau ecological shield, the Loess Plateau-Sichuan-Yunnan ecological shield, the northeast China forest belt, the northern China desertification-prevention belt, and the southern China mountainous belt.

34. Creating a recuperation system for farmland, grasslands, rivers, and lakes

A recuperation plan will be formulated for farmland, grassland, rivers, and lakes, adjusting the use of farmland in areas where there is heavy pollution or where groundwater has been over-extracted. Basic agricultural activity from land sloped greater than 25 degrees, which is not suitable for, and the ecosystem of which is harmed by, cultivation, will be gradually excluded from classification as basic cropland. A permanent mechanism will be formulated to consolidate progress in returning farmland to forest and grassland and converting grazing land back into grassland. Pilot projects will be launched to return cultivated land to lakes and wetlands. Efforts will be made to move forward with the pilot initiative for the restoration of heavy-metal contaminated soil in the Changsha-Zhuzhou-Xiangtan region, as well as the pilot project to comprehensively deal with the over-extraction of groundwater in northern China.

VII. Establishing an Effective System for Environmental Governance

35. Improving the pollutant emissions permit system

A unified and fair business emissions permit system covering all fixed pollution sources will be established quickly nationwide. Emissions permits will be issued in accordance with the law. Emission of pollutants without a permit or in violation of a permit will be prohibited.

36. Establishing a mechanism for cooperation within a region in pollution prevention and control

Cooperative mechanisms for joint prevention and control of air pollution will be improved in major areas such as the Beijing-Tianjin-Hebei region, the Yangtze River Delta, and the Pearl River Delta. Regional cooperation mechanisms will be established in other areas, taking into consideration their geographical features, levels of pollution, distribution of urban space, and patterns of pollutant transmission. Trials for creating new administrative systems for environmental protection will be held in some areas, using unified plans, standards, environmental evaluations, monitoring, and law enforcement. Trials will also be launched for the establishment of environmental regulators and administrative law enforcement agencies for river basins. A variety of cooperative mechanisms for protecting the water environments of river basins as well as early-warning systems for risk control will be put in place with the participation of the relevant provincial-level water-related departments within each river basin. An integrated mechanism for pollution prevention and control both on land and at sea and a control system governing the total quantity of pollutants discharged into key marine areas will be set up. The mechanism for responding to environmental emergencies will be improved and China's capacity for dealing with environmental emergencies of varying degrees of severity and involving different pollutants will be strengthened.

37. Establishing systems and mechanisms for rural environmental governance

An eco-oriented system of agricultural subsidies will be created. Efforts to formulate and improve relevant technical standards and specifications will be accelerated. Reductions to the use of chemical fertilizers, pesticides, and plastic sheeting and the recycling or safe disposal of animal husbandry waste will be carried out quickly. The production and use of biodegradable plastic sheeting is encouraged. The system for comprehensively utilizing crop straw will be improved. Networks for recycling, storing, transporting, and processing plastic sheeting and chemical fertilizer and pesticide packaging will be improved. Development of environmental protection facilities, such as those for handling rural wastewater and refuse, will be bolstered by subsidies from governments and village collectives, fee payments from residents, and the participation of non-government capital. A variety of assistive measures, including government procurement of services, will be adopted to foster and develop market entities for the control of all types of agricultural pollution from

non-point sources and for the handling of rural wastewater and refuse. County- and township-level governments will carry greater responsibility for environmental protection, and efforts to build their capacity for environmental regulation will be boosted. In allocating government funds for supporting agriculture, full consideration should be given to improving overall agricultural production capacity and to preventing and controlling rural pollution.

38. Improving systems for public disclosure of environmental information

Extensive efforts will be made to ensure public availability of environmental information pertaining to the atmosphere, water, and so on, to businesses that emit pollution, and to regulatory bodies. The mechanism for the public release of environmental impact evaluations for development projects will be improved. The environmental spokesperson system will be refined. Efforts will be made to promote awareness for environmental protection among the general public, the system of public participation will be improved, and more work needs to be done to ensure that the people exercise oversight over the environment in a legal and orderly way. An online platform and system will be created for the reporting of offenses related to environmental protection, and systems for offense-reporting, hearings, and public opinion-based oversight will be improved.

39. Strictly implementing compensation systems for ecological and environmental damage

Manufacturers' legal responsibilities for environmental protection will be tightened, and the cost of illegal activities will be significantly increased. Legal provisions concerning environmental damage compensation, methods for appraising damage, and mechanisms for enforcing compensation will be improved. In accordance with the law, penalties will be meted out to those who violate environmental laws and regulations, compensation for ecological and environmental damage will be determined by the extent of damage and other factors, and when violations result in serious adverse consequences, criminal liability will be pursued.

40. Improving the administrative system for environmental protection

An effective administrative system for environmental protection will be established to strictly regulate the emissions of all pollutants. Duties and responsibilities for environmental protection, which are currently spread across departments, will be assigned to one single department, progressively creating a system whereby one department is responsible for unified regulation and administrative law enforcement over urban and rural environmental protection work. Regulatory authority from different fields and departments and at

different levels will be systemically organized to create a unified and authoritative system for environmental law enforcement, strengthen the ranks of law enforcement, and provide those tasked with environmental law enforcement the necessary conditions and means to enforce the law. The mechanisms linking administrative law enforcement and environmental judicial work will be improved.

VIII. Improving the Market System for Environmental Governance and Ecological Conservation

41. Fostering market entities for environmental governance and ecological conservation

Systems, mechanisms, policies, and measures that encourage energy efficient and environmentally friendly industries will be adopted. Regulations and practices that hinder fair competition and the creation of a nationally unified market will be discontinued, and all types of investment will be encouraged to enter the environmental protection market. Non-government investors may participate in the development and operation of any environmental governance or ecological conservation program where cooperation between government and non-government investment is viable. By means of government procurement of services and other methods, more support will be provided for third-party governance of environmental pollution. The transformation of organizations in charge of the operation and management of wastewater and refuse treatment facilities into companies that exercise independent accounting and management will be accelerated. Companies that take investment from or are operated with state capital will be set up or created through reorganization in order to encourage greater investment of state capital into environmental governance and ecological conservation. Support will be given to state-owned firms in fields of ecological and environmental protection to reform toward a mixed-ownership system.

42. Promoting the trading of energy-use rights and carbon emissions rights

Combined with efforts to see that major energy-consuming organizations increase energy efficiency and to subject new projects to energy reviews, the trading of energy saved on projects will be allowed, and will progressively move toward the trading of energy-use rights based on the cap system for energy consumption. A trading system and a measurement and verification system for energy-use rights will be established. Energy performance contracting will be promoted. Trials of carbon emissions rights trading will be deepened, a national exchange for carbon emissions rights will be progressively created, and a national plan for setting the total trade and quota allocation of carbon emissions rights will be formulated. The carbon trading

registration system will be improved and a regulatory system will be established for the carbon emissions rights exchange.

43. Promoting the trading of pollution rights

On the basis of the cap system for enterprise pollution emissions, improvements will be made as quickly as possible to the granting of initial pollution rights, and coverage will be expanded to include more pollutants. Working from the foundations provided by the current mechanism for granting pollution rights to administrative regions, and on the basis of the best industry-wide levels of pollution emissions, the mechanism will be gradually strengthened to ensure the cap system for enterprise pollution emissions is implemented and the trading of pollution rights creates incentives for emissions reductions at the level of the individual enterprise. In key river basins and key areas for air pollution, implementation of pollution rights trading across administrative regions will be carried out as appropriate. Trials for the payment-based use and trading of pollution rights will be expanded to include more areas where conditions are appropriate. Efforts will be stepped up to improve the pollution rights exchange. Regulations will be developed on granting pollution rights, collecting and using pollution rights use fees, and setting trading prices.

44. Promoting the trading of water rights

Combined with efforts to establish an effective mechanism for compensating the expenses of water ecosystem protection and conservation, water-related rights will be appropriately defined and allocated and ways of trading water rights between regions, between river basins, between the lower and upper reaches of rivers, between industries, and between water users will be explored. Research will be conducted into formulating regulations concerning the trading of water rights, to clearly define the scope and types of tradable water rights, the trading entities and time frames, the mechanisms for determining trading prices, and the rules for the operation of the exchange. An exchange for water rights will be developed.

45. Establishing a green finance system

Green credit will be promoted, with research being undertaken into adopting methods such as government interest subsidies to boost the level of support. All types of financial institutions are encouraged to step up grants of green loans. Requirements for the due diligence of borrowers as well as their legal responsibilities concerning environmental protection will be clarified. Efforts will be stepped up to further develop the systems related to capital markets. Research will be conducted to explore the establishment of a green stock

index and the development of relevant investment products, and studies will be undertaken to explore the issuance of green bonds by banks and enterprises, encouraging the securitization of green credit assets. Support will be given for the launch of multiple types of green development funds, the operations of which will be market-based. A mechanism will be established for the mandatory release of environmental protection information by listed companies. Guaranty mechanisms for energy-efficient, low-carbon, and environmentally friendly projects will be improved, and the level of risk compensation increased. A compulsory liability insurance system for environmental pollution will be established in sectors involving high environmental risks. A green rating system as well as a non-profit system for calculating environmental costs and evaluating environmental impact will be established. Cooperation of all types with other countries will be promoted in green finance.

46. Establishing a unified system for green products

Products that are licensed as environmentally friendly, energy-efficient, water-saving, circular, low-carbon, recyclable, or organic will be uniformly classified as green products, and standardized green product standards, certifications, and logos will be established for them. Improvements will be made to policies on fiscal and tax support and government procurement for the research and development, production, transport, delivery, purchase, and use of green products.

IX. Improving Ecological Conservation Performance Evaluation and Accountability Systems

47. Establishing ecological conservation targets

Research will be conducted into developing practicable and visually representable indicators for assessing green development. Measures will be put in place to evaluate the attainment of ecological conservation targets, and indicators for resource consumption, environmental damage, and ecological benefit will be incorporated into a comprehensive evaluation system for economic and social development. Different performance evaluation criteria will be applied to different regions on the basis of their functional zoning.

48. Establishing monitoring and early-warning mechanisms for environmental and resource carrying capacity

Research will be undertaken into developing indicators and applying the right technology for monitoring and producing early warnings about resource and environmental carrying capacity. Monitoring and early-warning databases and

IT platforms will be created for resources and the environment. Reports on monitoring and early-warning about resource and environmental carrying capacity will be prepared at regular intervals, and warnings will be issued and measures taken to place restrictions on regions which have exceeded or are approaching their carrying capacity in terms of resource consumption and environmental capacity.

49. Exploring the creation of balance sheets for natural resource assets

Guidelines will be formulated on preparing balance sheets for natural resource assets. Asset and liability accounting methods will be developed for use with water, land, forest, and other types of resources; accounts will be established for accounting natural resources in physical terms; classificatory criteria and statistical standards will be clearly laid out; and changes in natural resource assets will be regularly assessed. The preparation of balance sheets for natural resource assets will take place on a trial basis at the municipal (county) level, with physical accounts of major natural resource assets being assessed and results released.

50. Auditing outgoing officials' management of natural resource assets

On the basis of the preparation of balance sheets for natural resource assets and making reasonable allowance for objective natural factors, active efforts will be made to explore the objectives, content, methods, and appraisal indicators for auditing outgoing officials' management of natural resource assets. Based on the changes in natural resource assets within their area of jurisdiction during their term of office, through auditing, an objective evaluation will be carried out of the outgoing official's management of natural resource assets; an official's liability will be determined in accordance with the law, and auditing results will be put to better use. Trials for preparing balance sheets for natural resource assets and for audits of the management of natural resource assets by outgoing officials will be conducted in the cities of Hulun Buir in Inner Mongolia, Huzhou in Zhejiang, Loudi in Hunan, Chishui in Guizhou, and Yan'an in Shaanxi.

51. Establishing a lifelong accountability system for ecological and environmental damage

Leaders of local CPC committees and governments will be responsible for both economic development and ecological progress. On the basis of the results of the natural resource asset audits of outgoing officials and ecological and environmental damage, the circumstances under which the principal leaders of local CPC committees and governments, related leaders, and departmental leaders will be held accountable and the procedures for

confirming accountability will be made clear. Those responsible for ecological and environmental damage will, on the basis of the severity of misconduct, be reprimanded, required to make a public apology, or dealt with through organizational, Party, or disciplinary action. For circumstances which constitute a criminal act, criminal liability will be pursued in accordance with the law. A system of lifelong accountability will be put into effect for major ecological and environmental damage which becomes apparent after an official has left office and for which he or she is found liable. A national supervision and inspection system for environmental protection will be established.

X. Ensuring Successful Implementation of the Reform to Promote Ecological Progress

52. Strengthening leadership over the reform to promote ecological progress

All local governments and departments need to study the central leadership's guiding principles on making ecological progress and carrying out reform to this effect, develop a deep understanding of the tremendous significance of this reform, and strengthen their sense of responsibility, sense of purpose, and sense of urgency over its implementation. Local governments and departments need to do their utmost to put into effect the policy decisions and arrangements of the CPC Central Committee and the State Council and see to it that all objectives contained within this reform plan are carried out quickly. In accordance with the requirements set out in this plan, all government departments concerned should promptly draw up plans for implementing each item of the reform, delegate responsibility and set time frames, and through close cooperation and collaboration with others create a concerted reform effort.

53. Launching pilot initiatives and explorative projects

Both the central and local governments will play an active role. All local governments are encouraged, in line with the direction of reform set out in this plan, to proactively explore and move forward with the reform to promote ecological progress, treating their local conditions as their point of departure and the solving of serious ecological and environmental problems as their target. Reforms that require legal authorization should be handled in accordance with statutory procedures. Comprehensive pilot initiatives for achieving ecological progress being conducted independently by different government departments will be incorporated into national pilot initiatives and explorative projects and will receive guidance and encouragement from those authorities whose own functions put them in a position to provide such support.

54. Improving laws and regulations

Legislative support will be provided for the reform to promote ecological progress through the development of effective laws and regulations on property rights for natural resource assets, the development and protection of territorial space, national parks, spatial planning, seas, responses to climate change, protection of cropland quality, water conservation and groundwater management, grassland and wetland preservation, pollutant emission permits, and compensation for ecological and environmental damage.

55. Improving guidance on public communication

Publicity both in China and abroad on efforts to promote ecological progress and carry out the reform to this effect will be stepped up. This will require coordinated planning and accurate interpretations of each of the systems and the direction of reform-all designed to promote ecological progress. It should cultivate and popularize eco-culture, raise public awareness about ecological progress, and advocate a green life-style, thereby creating a positive social atmosphere in which efforts to promote eco-progress are viewed with respect, and which will help to promote ecological progress and the reform designed to bring about it.

56. Exercising stricter supervision over reform implementation

The office of the Central Leading Group for Comprehensively Deepening Reform and the leading group' s Reform Taskforce for the Promotion of Economic Development and Ecological Progress should strengthen its overall coordination, carry out follow-up analyses and supervisory inspections over the implementation of this plan, accurately interpret and promptly resolve any problems arising during its implementation, and promptly report any major issues to the CPC Central Committee and the State Council.