

Chapter 3

Land Policies in China: National, Provincial and Local Environmental Policies

3.1 Evolution of Environmental Policies

China's policies on the environment have gone through three stages (Zhang Kunming 1994).

The First National Conference on Environmental Protection was held in 1973 after the Stockholm Conference. The conference defined the so-called '32-Characters Policy' for environmental protection and adopted 'Some Stipulations on Protecting and Improving Environment' (Trial Draft).

The 32-Characters Policy emphasises 'overall planning, reasonable layout, comprehensive utilisation, turning harm into good, relying on the masses, everybody sets to work, protecting environment, and bringing benefit to the people'. At the same time, according to the actual situation of the country and learning from the experience of foreign countries, the government began to implement the system of 'three simultaneousnesses'. It meant

that facilities for preventing and controlling pollution must be simultaneously designed, constructed, and commissioned with the main project. A system of levies on pollutant dischargers was also implemented. Most fees were used to subsidise enterprises for pollution prevention and control in the form of appropriation and loans. Some 20 per cent of the funds were used for the construction of an environmental protection system. Meanwhile, a system of environmental impact assessment (EIA) was implemented. This system requires a report on EIA to be examined and approved before all construction projects proceed.

In 1979, the 'Law on Environmental Protection' (in trial implementation) was promulgated, affirming the basic policies of environmental protection mentioned above. The policy that whoever causes pollution should be responsible for its elimination was also established. The government also stated that various organisations related to environmental protection would be established, and that adminis-

tration over environmental protection should be strengthened. Since then China's environmental protection work has been brought into the orbit of the legal system.

The Second National Conference on Environmental Protection was held at the end of 1983. It stated that environmental protection would be regarded as a basic national policy. It put forward the strategic policies: simultaneous economic, urban and rural, and environmental construction; simultaneous planning, implementation, and development; and unification in economic, social, and environmental benefits. This conference also defined that the strengthening of administration over the environment should be regarded as the central key for environmental protection. Since then, laws and stipulations such as the 'Law on Water Pollution Prevention and Control', the 'Law on Prevention and Control of Air Pollution', 'Stipulation for Technology to Prevent and Control Smoke Pollution', and 'Stipulation for Technology to Prevent and Control Water Pollution' have been issued.

Three principles for environmental protection gradually took shape. They are the principle of putting prevention first and combining prevention with control, the principle that whoever causes pollution must be responsible for its elimination, and the principle of reinforcing environmental administration. The state practised the 'Eight Systems and Measures for Environmental Management'. They include, beside the three old ones (three simultaneousnesses, levies on pollutant dischargers, and EIA), the following five new measures.

- The responsibility system for environmental protection targets. Governors, mayors, and county heads should be responsible for targets and tasks of

environmental protection in their term of office in the form of a responsibility letter. The responsibility letter will be regarded as important to check on achievements in their official career.

- The quantitative examination of comprehensive renovation and control of the urban environment, including 20 indices of such aspects as air, water, noise, solid wastes, and afforestation. Moreover, the results of examination should be opened to the public.
- System of pollution discharge permits
- System for centralised pollution control
- System of setting deadlines for pollution sources to reach a control target

The Third National Conference on Environmental Protection was held in 1989. The conference stressed that the above eight systems should be continuously implemented and improved in the 1990s. They have been stipulated in the laws, rules, and regulations of the country. In August 1992, not long after the UN Conference on Environment and Development, the government approved the following ten counter measures for environment and development.

- To pursue the strategy of sustainable development
- To adopt effective measures to prevent and control industrial pollution
- To carry out comprehensive renovation and control of urban environment and to handle the Four Evils (air pollutants, water pollutants, earth-surface pollutants, and noise pollutants) in cities
- To raise the efficiency of energy use and improve the energy structure
- To popularise eco-farming, to plant trees and strengthen protection of biodiversity
- To promote scientific and technological progress for strengthening envi-

ronmental study and developing environment-related industries

- To protect the environment through economic measures
- To strengthen environmental education and to heighten the environmental awareness of the public
- To improve the legal system for the environment and reinforce environmental management
- To work out China's plan of action in line with guidelines from the UN Conference on Environment

3.1.1 Structure of Environmental Law

The Constitution of the People's Republic of China sets down a series of stipulations on environmental protection. These stipulations provide the most basic foundation for making laws, policies, stipulations, and regulations on environmental protection. They emphasise the conservation and reasonable use of natural resources and environmental protection so as to avoid environmental destruction by unreasonable exploitation and utilisation. The 26th clause states: *"The state aims to protect and improve the living environment and ecology, prevent pollution, and social effects of pollution"*.

The ninth clause identifies: *"Such natural resources as minerals, rivers, forest, range land, wasteland, and so on, all belong to the state (namely belong to the public of the whole country), except for those which belong to the collective according to the law. The state guarantees the reasonable utilisation of natural resources, conservation of precious wildlife, and wild plants and prohibits any organisations and individuals from occupying and destroying natural resources with whatever means."*

According to article 10 of section 2: *"All organisations and individuals who use the land must utilise it reasonably."*

In December 1989, the State Council of the People's Republic of China enacted the 'Law on Environmental Protection'. This is the fundamental law on environmental protection. The law stipulates that the objects of environmental protection are *"all environmental elements, including air, water, ocean, land, mineral resources, forest, grasslands, wildlife, natural and historical relics, nature reserve, scenic spots, cities, and countryside which directly or indirectly influence human existence and development"*.

The law also stipulates the practical system of environmental protection, including the following.

- Principle of harmony between economic development and environmental protection
- Putting prevention first and combining prevention with control
- System of environmental impact assessment (EIA)
- Three simultaneousnesses
- Levies on pollutant dischargers

This law also stipulates the basic demands for protecting the environment from pollution and for relevant obligation and prescribes the extent of authority and tasks of central and local environmental agencies on environmental supervision and management. It stipulates that every individual, group, organisation, and agency have the obligation to protect the environment and have a duty and power to supervise, report on, and accuse those who pollute and destroy it. The law also regulates the legal responsibilities, such as administrative responsibility, civil responsibility, and criminal responsibility, for breaking the Law on Environmental Protection.

Laws on land-use planning fall into the following categories.

- Law on territory renovation (although it has not been issued yet)

- Law on regional planning of agriculture—The Agricultural Ministry issued a 'Guideline for Helping Agricultural Producers' Cooperatives to Make Land Planning' (in 1957). The Agricultural Committee of the State Council compiled the 'Report of Unfolding Research on Natural Resources of Agriculture and on Agricultural Regional Planning'. The State Council approved this report (in 1979). The Agricultural Ministry issued a 'Guideline for Unfolding Further Land Use Planning' (in 1960). To date, a law on agricultural planning has not been made.
- Law on rural and township planning—The Construction Committee and Agriculture Committee of the State Council issued the 'Principles on Rural and Township Planning' in 1982. In the same year, the State Council promulgated the 'Provisions for Management over House-Building in Rural and Township Areas'.

A series of laws on pollution prevention and control has been made and implemented. For example, the Standing Committee of the National People's Congress (SCNPC) promulgated the 'Law on Ocean Environment Protection of the PRC' (in 1982), the 'Stipulation for Technology to Prevent and Control Smoke Pollution' (in 1984), and the 'Law on Prevention and Control of Air Pollution' (CPCAP) (in 1987). The EPCSC also ensured the 'Law on Prevention and Control of Solid Waste Pollution' (in 1996), rectified and passed through the new 'Law on Prevention and Control of Air Pollution' (LPCWP) and the 'Law on Prevention and Control of Noise Pollution' (in 1996). The State Council promulgated the 'Provision of General Administration for Preventing Sea Pollution' (in 1983), the 'Provision of General Administration for Offshore Oil Exploitation and Environmental Protection' (in 1983), and the

'Law on Prevention and Control of Water Pollution' (LPCWP) (in 1984). The State Council successively issued the 'Provision of General Administration for Dumping Waste and Pollutants into the Sea' (in 1985), 'Regulation on Prevention and Control of Noise Pollution' (in 1989), and enforcement regulations on 'Prevention and Control of Water Pollution' (in 1989). The State Council also issued enforcement regulations on the 'Prevention and Control of Air Pollution' (in 1991), approved the 'Provisional Regulations on Prevention and Control of Water Pollution in Huaihe River Basin' (in 1995), and issued a 'Provision of the General Administration on Pesticides' (in 1997). The Ministry of Agriculture, Animal Husbandry, and Fisheries (now the Agricultural Ministry), Forestry Ministry, Ministry of Chemical Industry, Ministry of Sanitation, and Ministry of Commerce together with the lead group of the State Council issued the 'Stipulation on Pesticide Registration' (in 1982).

Policies and stipulations on natural conservation have been established. The State Council issued the 'Provision on Water and Soil Conservations' (in 1982) and the 'Announcement on Protecting Strictly Precious Wildlife' (in 1983). In 1987, the State Council enacted three stipulations that matched with the Law on Mineral Resources. They are the 'Interim Procedures on Prospecting and Registration Management of Mineral Resources', the 'Interim Procedures on Mining and Registration', and the 'Interim Procedures on Supervision and Management of Mineral Resources'. The SCNPC issued the 'Forest Law' (in 1984), passed and issued the 'Law on Mineral Resources' (in 1986), and passed and enacted the 'Law on Water' (in 1988) and approved the 'Law on Conservation of Water and Soil' (in 1991). The President of China promulgated the 'Grassland Law' (in 1985) and issued the 'Law on Protection of Wildlife'

(in 1988). The Agricultural Ministry issued the 'Provision on Breeding and Protection of Aquatic Resources' (in 1981) and the relevant enforcement regulations (in 1993).

Laws and stipulations on environmental management have also been enacted. The State Council issued 'Interim Procedures for Imposition of a Discharge Pollutant Fee' (in 1982), the 'Stipulation for Strengthening the Environmental Management of Townships, Enterprises and Streets' (in 1984) and the 'Determination on Further Strengthening the Work of Environmental Protection' (in 1990). The Ministry of Urban-Rural Construction and Environmental Protection issued the 'Provision for General Administration on Environmental Supervision of the Country' (in 1983). The State Committee of Economy issued the 'Interim Provision on Several Problems about the Comprehensive Utilisation of Resources' (in 1985). The State Committee of Economy together with the State Committee of Environment promulgated 'Enforcement Procedures for the Check-up System of Environmental Protection of Industrious Enterprise' (in 1985). These two committees together with the Planning Committee of the State promulgated 'Procedures of the General Administration on Environmental Protection for Construction Project' (in 1986). After the UN Conference on Environment and Development, the National People's Congress and State Council approved 'China's Ten Countermeasures for Environment and Development' (in 1992) and issued *China's Agenda 21: The White Book of Population, Environment and Development of China in the 21st Century*.

The State Council issued 'Trial Standards on Three Wastes (waste gas, waste water and solid waste) of Industry' (in 1973). The Environmental Protection Group of the State Council issued 'Standards on

Quality of Air Environment' (in 1982), 'Standards on Quality of Seawater' (in 1982), and 'Standards on Noise in the Urban Region' (in 1982). The Ministry of Urban-Rural Construction and Environmental Protection issued the 'Standards on Environmental Quality of Groundwater' (in 1983). The Ministry of Agriculture and Forestry issued the 'Standards on Safe Use of Pesticides' (in 1984). The Environmental Protection Group of the State Council, the Infrastructure Construction Committee, and the State Committee of Economy and Agricultural Ministry reissued together the 'Standards on Quality of Irrigation Water for Farmland' (in 1985). The Infrastructure Construction Committee of the State and Ministry of Sanitation revised the 'Sanitary Standards on Drinking Water' (in 1985). The Ministry of the Metal Melting Industry issued 'Discharge Standards on Pollutants for the of Steel Industry' (in 1985).

Article 98 of the General Rules of the Civil Law stipulates: "Citizens have a right to enjoy life and health. Behaviour harming the citizens' health by polluting the environment belongs to tortuous activities." The Criminal Law stipulates: "breaking the forest law, such as illegal cutting of trees; breaking the fishery law, such as fishing during the forbidden fishery season or in a forbidden zone, or catching the aquatic product with forbidden tools and means; and breaking the hunting law, e.g., damaging precious birds, beasts, or other wildlife resources all compose a crime." It also stipulates a relevant fine if the circumstances are serious. In addition, the Economic Law and the Security Administration Act also stipulates corresponding clauses on environmental protection.

3.1.2 Environmental Policies in Yunnan Province

The Yunnan Provincial Government (YPG) has transferred many national

laws and stipulations or re-made some new detailed rules and regulations according to the special conditions of the province. The government sent these laws and stipulations to every city, county, and relevant department for implementation. Subsequently, the local government also made more detailed enforcement regulations according to their special situation. Recently, YNG have made and issued a series of policies and stipulations that have brought about significant progress in the field on managing the natural resources and protecting environment by laws.

The YPG issued the 'Procedures of the General Administration on Environmental Protection of Collective and Private Enterprises in Urban and Rural Areas' (in 1991) and the 'Procedures of the General Administration for Imposition of a Pollution Discharge Fee in Yunnan Province' (in 1993). YPG also successively issued the 'Administrative Procedures for the Imposition of the Compensation of Mineral Resources' (in 1994), the 'Enforcement Procedures on Rewards and Penalties for Environmental Protection' (in 1995), and the 'Provision on Agricultural Environmental Protection' (in 1997).

The Standing Committee of Yunnan Province People's Congress (SCYPPC) passed the 'Provision on Environmental Protection in Yunnan Province' (in 1992), and passed and issued 'Some Stipulations for Non-gratuitous Exploitation of Barren Hills in Yunnan Province' (in 1994). SCYPPC issued the 12th decree: 'Implementation Procedures of the Law on Prevention and Control of Water Pollution and passed through the Provision on Management of Mining of Collective and Private Enterprises and Individuals in Yunnan Province' (in 1994).

According to the national 'Law on Environmental Protection and the Yunnan

Province's Provision on Environmental Protection', YPG issued the 'Enforcement Provisions on Target-Responsibility System of Environmental Protection in Yunnan Province' (in 1994). The provision stipulated the examined content and concrete check-up index. For example, the examined content includes: whether the investments of environmental protection were put into pool; whether institutes, staff, facilities and fees of environmental protection are matched with the work of environmental protection in the region; and the managing circumstance of various natural conserves. The check-up criteria include the treatment rate and time limit of main industrial pollution sources, the quantitative examination of environmental elements, the implementation rate of the Three Simultaneousnesses, areas of afforestation and survival rates, and the treatment rate of polluting accidents. The results of assessment are open to the public. The implementation of this provision not only prompts environmental protection, but also lets the public participate in the implementation process.

3.1.3 Environmental Policies in Luquan County

The government of Luquan County has implemented some policies on environmental protection. The Standing Committee of Luquan People's Congress enacted the 'Interim Provisions on Environmental Protection of Zhangjiu River Basin in Luquan County' (in 1995). It is the only regulation about environmental protection made by Luquan County itself. The Environmental Protection Station of the Urban Construction Bureau of Luquan County is responsible for detailed planning and enforcement. However, the station does not make detailed regulations about environmental protection except for implementing national and provincial policies and stipulations.

3.2 Land Policies

3.2.1 Institutional Evolution of Land-use Rights in Rural China

In the 1950s, the state owned all land in China. The institution of gratuitous use of land was implemented and transferring of rural public land was forbidden. The state gratuitously allocated rural public land to farmers, collectives, or enterprises for utilisation and stipulated that the user could not transfer land by way of renting, selling, or any other form. In 1950, the Government Administration Council (GAC predecessor of the State Council) promulgated the 'Indication about Resolving the Problems of Rural Land in Old Liberated Areas'. It stipulated: "All users of rural public land for cultivation are exempt from land rent, but pay agricultural tax." Also in 1950, the Law on Land Reform stipulated: "Public land managed by privateers can not be rented, sold or cast aside."

This system was detrimental to effective utilisation and rational allocation of land. Also it did not put any responsibility for land conservation on the user. Every user wanted to occupy more and better land. The prohibiting of land transfer and rent discouraged people from investing in the land.

During the period of the People's Commune (1958-78), collective ownership of land was implemented. Land was owned and managed by collectives, and farmers worked on collective-owned land for their income and grain. Farmers also had small plots of land (called self-remained land) on which to grow vegetables or cash crops.

Since 1979, the rural economic system has been gradually reformed and the contract responsibility system has been developed. This means that collectively owned land and other production materials are

contracted to each household for independent use and management. Individual users are responsible for both their profit and loss. The contract responsibility system makes land-use rights separate from land ownership to some extent. This land policy cancelled egalitarianism and embodied the principle of distribution according to work.

Implementation of the land contract responsibility system greatly modified the enthusiasm of farmers, prompted agricultural development, and improved living standards. Nevertheless, the contract responsibility system also led to some serious problems. Firstly, each household had less land, and the land allocated to individuals was difficult to cultivate with modern machines. Secondly, some households, who had not enough farmland, became unemployed. Thirdly, some households lacked labour to cultivate extensively. Fourthly, it was difficult to form a useful scale of land management. Finally, farmers felt this system was not stable because land-use rights were not explicitly guaranteed by law; therefore, farmers were unwilling to invest capital in their farmland.

SCNPC passed the 'Law on Land Administration of the PRC' in 1986. The NPC revised and implemented this law in 1988. The Law on Land Administration is a milestone in land use and management. The government made a series of policies in order to prompt reform of the land-use system and popularise the non-gratuitous land-use system.

In 1982, the State Council distributed the 'Report about Resolving the Problems of Abusively Occupying Farmland for Building Houses' to various levels of government. This report pointed out: "The State will impose land-use tax on both private-house construction and construction by

various organisations according to the area and quality of the land." In 1986, the State Council issued the 'Announcement on Reinforcing Land Administration for Controlling Illegal Occupation of Farmland'. It pointed out that the state should control non-agricultural use by means of economic measures and impose land tax and land-use fees according to the use and quality of the land.

In 1992, the State Land Administration issued the Emergency Notification on Strict Examination and Approvals about Land by Law. It emphasised that: *"to reinforce the administration of land prices, the State Land Administration should define as quickly as possible the standard land price in their own region according to the theory of differential land rent and the current situation of the land market."*

In 1988, the State Council issued the 'Provision on Land Rehabilitation'. It stipulated that land users must follow policies of comprehensive exploration, assessment, and utilisation while exploiting mineral resources. Illegal exploitation should be strictly forbidden so as to prevent and control resource destruction and deterioration of the natural environment. It also stipulates that: *"while exploiting mineral resources, land users must conserve land and take some rehabilitation measures if farmlands, grasslands, or forest lands are destroyed by mining."* In addition, policies state that whoever causes land destruction must be responsible for its rehabilitation; and reclamation of destroyed land should be according to rehabilitation planning.

The State Council issued the 'Provisions on Enforcement of the Law on Land Administration' in 1991. The Emergency Notification on 'Strict Prohibition of Illegal Land Occupation', issued in 1992, aims: *"to insist on paying attention to the man-*

agement of land resources and property; to normalise the land market; to integrate planning, requisition, exploitation and rent of land with land administration."

The 'Provision on the Protection of Basic Farmland' was issued in 1994. In 1998, the 'Law on Land Administration' was revised and reissued by SCNPC. The most important changes include a new chapter on farmland conservation and a clause on lengthening the land contract term by another 30 years.

In addition, every province, autonomous region and municipal makes a series of relevant policies and stipulations of land administration to carry out national policies. These play an important role in deepening the system of non-gratuitous land use. These policies also contribute to farmland conservation and improve the efficiency of land use.

3.2.2 Land Policies in Yunnan Province

Yunnan Province has made a series of important policies on land administration in recent years. The SCYPPC approved and issued the 'Implementation Provisions on Land Management in Yunnan Province' (in 1994), 'Some Stipulations on Non-gratuitous Exploitation of the Barren Mountains in Yunnan Province' (in 1994), and the 'Provisions on Conservation of the Fundamental Farmlands' (in 1995).

YPG issued the 'Implementation Provisions on Rent and Transfer of Land-use Rights of Public Land in Yunnan Province' (in 1993). The YPG and its relevant departments also issued a series of notifications on the imposition of fees for non-agricultural land use.

In 1996, the 'Land Bureau of Yunnan Province' promulgated the Supplement

Notification on the 25th [1995] Document issued by State Land Administration. It pointed out that the: "Provincial Land Bureau can only keep 10 per cent of the total land management fee imposed by itself and, of the rest, 20 per cent must be returned to the local land authority and 70 per cent sent to the State Land Administration. The local land authority can keep 30 per cent of the management fee imposed by itself and return 70 per cent to the State Land Administration."

3.2.3 Land Policies in Luquan County

In 1992, the Government of Luquan County issued the relevant 'Provision on Implementation of the Law on Land Administration in Luquan Yi and Miao Nationalities Autonomous County'. In the provision, there are detailed regulations about land-management fees.

3.3 Agricultural Policies

The Agricultural Policy aims to solve a particular problem or realise a plan in an agricultural or rural area. In practice, agricultural policy has some effect on land-use patterns, land quality, and quantity.

3.3.1 Agricultural Policies in China

The 'Contract Responsibility System Linked to Output' (CRSLO) is a management style for community agricultural organisations. Its prerequisite is to take such production material as land to be public property that cannot be changed in the long term. The responsibilities, rights, and benefits of the agricultural community and individual farmer were ascertained. The CRSLO has played an important role in agricultural development. It is characterised by the combination of unified and scattered production. Redistribution of public materials to farmers allows them

greater independent rights and initiatives to engage in agriculture. It has linked remuneration directly to output.

The main method of CRSLO is a contract responsibility system based on the household with remuneration linked to output (contracted responsibility with family and special individuals). Other methods include payment linked to output, and contracted responsibility with farmers' groups. The preferred method for farmers is contracted responsibility with family. It means that agricultural organisations within the community do not unify production procedures and distribution. The procedure is based on a family's decision. Agricultural products must first satisfy country collection and community reservation. Then the farmer can freely sell excess agricultural products in the market.

In 1995 the document on 'Opinions on Stabilising and Improving the Contract Responsibility System of Land', proposed by the Agricultural Ministry, was approved by the State Council. The document indicated the following.

- Contracts that have ended will continue. The contracted time will be extended by another 30 years.
- The principles of not increasing land area with an increase in family members and not reducing land area with a decrease in family members should be advocated. For regions where population increase is fast, a trial solution is 'to change the account instead of the land'. This means to take financial measures to solve unequal land accessibility caused by population growth or reduction, instead of reallocating the land within several years or adjusting it in the short term by stabilising it in the long term. If approved by most farmers in community organisations, land redistribution can be made. The pe-

riod for short-term adjustment cannot be less than five years.

- A transfer system for contracted-use ownership should be established. It allows farmers to transfer their land-use rights to others through exchanging or buying a share. However, farmers have no right to change agricultural land to non-agricultural uses.
- A farmer's burden cannot be allowed to increase as a result of land readjustment.

Chinese agriculture aims to achieve optimum economic, ecological, and social benefits. It emphasises low input, high output, high quality, and environmentally friendly methods; but it does not exclude the use of chemical materials absolutely. It tries to fit in with the carrying capacity of the natural resources. It is compatible with the concepts of sustainable development. The government has drawn up a series of policies to develop ecological and sustainable agriculture.

In 1984, the State Council advocated the development of ecological agriculture in the Second Conference of National Environmental Protection. The document of the State Council drawn up at this conference indicated that environmental agencies at all levels should cooperate with other government agencies to spread ecological agricultural technology and prevent environmental destruction. The Chinese Environmental Protection Agency of the State Council drew up 'Opinions on Developing Ecological Agriculture and Strengthening Agricultural Environmental Protection'. From the perspective of law and policy, it indicated clearly that China should use ecological agriculture.

In 1991, the Tenth Plan of National Economic and Social Development and the outline of the Eighth Five-Year Plan were passed. They indicated that the govern-

ment should continue to conduct demonstrations of environmental harnessing and ecological agriculture.

In 1992, the central government indicated that agricultural development should be low input, high efficiency; have low energy costs; and conserve nature. The State Council put forward the idea of "*spreading ecological agriculture and afforestation as policies to solve environmental and development problems.*"

In 1995, the Ninth Five-Year Plan and a long-term plan for 2010 were drawn up. These documents also emphasised developing ecological agriculture and protecting agricultural environments. In China's Agenda 21, ecological agriculture and sustainable agricultural development on a countrywide scale were put forward as one of the goals for the government to establish and improve an integrated management system of sustainable development by the end of 2000. It was stipulated that present agricultural laws and regulations should be revised according to the principles of ecological and sustainable agriculture. Plans to improve and strengthen laws and regulations were proposed, especially the law and policy systems on agricultural environmental protection and natural resource conservation—such as regulation of agricultural environmental protection, regulation of cropland protection, regulation of renewable plant and animal species. It was suggested that previous laws and regulations related to agricultural plans and policies should be studied again and re-evaluated, so that farmers and government could co-ordinate their actions in developing sustainable agriculture. The Agenda 21 required carrying out agricultural experiments on sustainable development, including doubling experimental sites.

The 'Agricultural Law of the People's Republic of China', promulgated in 1993, is

about agricultural technology and education. It stipulated the following.

- Government at all levels should gradually increase funds to invest in agricultural technology and education.
- The government should develop compulsory education and occupational education in the countryside to improve labour quality.
- The government should support the rapid extension of advanced agricultural technology to farmers. Extension units should co-ordinate with research and education units to spread advanced agricultural technology.
- Government policies, such as those on taxes and loans, should be preferential to the extension of advanced agricultural technology.
- Government at all levels should adopt operational measures to ensure the extension of advanced agricultural technology and increase extension staff.
- The government should encourage farmers to accept advanced technology, and support farmers in setting up technological organisations.

Laws on extension of advanced agricultural technology were promulgated in 1993. They indicated that the government should depend on technology and educational developments to create agriculture of high quality and high yield; extension of technology should be proved to be advanced and suitable to local conditions; farmers should apply agricultural technology willingly; and government agencies should serve farmers without charge (except for royalties) for technology transfer and contracted services.

Although agricultural investment increases year by year, government investment in agriculture is low compared to other in-

dustries. Agricultural investment concentrates on such infrastructure and key projects as water conservation, flood prevention and irrigation systems, key infrastructure for agricultural production and trade, and construction of a commercial grain base, lumber-forest base, and shelter forest. Community and individuals mainly invest in agricultural production and field-conservation systems.

The Agricultural Law stipulates that "any improper activities such as burning mountains for cultivation, reclamation of lakes and cultivation on steep slopes are forbidden"; that it is "forbidden for anyone to denude forest. Forest should be protected, and forest coverage should be increased"; and that "special measures should be taken for basic cropland conservation".

The Grassland Law stipulates that the "grassland plant community must be protected strictly. Any activities to reclaim or destroy grassland must be forbidden. For grasslands that have been cultivated, the county government must enclose and restore the plant community within a certain period"; any activities such as "cutting shrubs and sand-fixing plants or digging of medical herbs in the desert, semi-desert, and desertified grasslands must be forbidden"; and people should "utilise grassland properly, and prevent overgrazing."

3.3.2 Agricultural Policies in Yunnan Province

In addition to carrying out national agricultural policies, YPG made a series of relevant laws and stipulations (LGPL 1997).

In 1990, the YPG issued 'Procedures on Approving Officially the Crop Strains in Yunnan Province'. In 1991, SCYPPC approved and issued the 'Implementation Provision on the Fishery Law of PRC in

Yunnan Province'. In 1993, YPG issued 'Implementation Procedures on Management of Crop Seeds in Yunnan Province'. In 1995, YPG issued the 'Procedures of the General Administration about Farmers' Bearing Fee and Labour Service in Yunnan Province'.

In 1995, SCYPPC approved and issued 'Provisions on Conservation of Fundamental Farmlands in Yunnan Province' (PCFFYP) according to the 'Law on Agriculture of the PRC', the 'Law on Land Administration of the PRC' and the 'Provision on Conservation of Fundamental Farmlands' issued by the State Council. It stipulates punishments for breaking relevant laws and regulations.

In 1996, the SCYPPC issued the 'Provision on Agricultural Contracts in Yunnan Province'. It stipulates that: "*contractors cannot destructively operate and manage contracted farmlands, forest lands, barren mountains, and grass hills, etc. They cannot build houses, move earth, and make bricks on these lands.*" However, it lacks relevant articles about monitoring contracted land after expiry of the contract. This weakens the policies' ability to control land degradation. In 1997, SCYPPC issued the 'Provision on Protection of Agricultural Environment in Yunnan Province'. This provision details penalties.

3.3.3 Agricultural Policies in Luquan County

The Agricultural Bureau of Luquan County also has made regulations in order to guarantee farmers' livelihood and to eliminate poverty. For instance, a policy called 'Three Guarantees for Farmland' has been issued. This guarantees water supply, fertiliser supply, and control of soil erosion through a subsidy to farmers of 100 yuan per 0.067 ha from local government's poverty-aid fund. It also requires

farmers to terrace steep slopes and prevents farmers from opening up wasteland. This kind of policy has played an important role in controlling land degradation.

Mountain land has changed from being state-owned to farmers' tenure. Investment for this land has been changed also from state investment only to farmers' investment combined with partial state investment. This manner of management demands the close cooperation of local farmers, and will impact land use, land management, and land degradation/improvement.

3.4 Forestry Policies

The need for farmland has damaged forestry resources seriously. Since 1949, the government has enacted many policies to protect forestry resources and to plant trees. The forestry coverage rate has increased to about 13.4 per cent of the total territory. Results from the Third National Forestry Survey (1984-88) indicated that the forest coverage rate increased a little compared with the results from the Second National Forestry Survey (1977-81). Nevertheless, forest quality decreased and wood storage was reduced by about one third. The wood-consumption rate is higher than the wood-growth rate. Forestry policy has played a role in creating this situation.

3.4.1 Evolution of Forestry Policy

There were forest protection rules in the ancient Xia (2100-1600 years BC), Shang (1600-1100 years BC), and Zhou (1100-800 years BC) dynasties. Throughout the slave and feudal society, there were many regulations for forestry conservation; modern forestry legislation started after the Chinese Democratic Revolution in 1911. Forest laws were written in 1914 and 1932.

In 1979, the 'Interim Law on Forest Conservation of the People's Republic of China' was passed at the NPC. After five years' experimental application and revision, the law was formally passed in 1984. In 1986, the Ministry of Forestry drew up the 'Detailed Implementation Rules of Law on Forestry of the People's Republic of China'. In 1987, the Ministry of Forestry formulated the 'Management Regulations for Forestry Cutting and Renewal'. The State Council drew up the 'Regulations for Prevention of Forest Fire' in 1988, and the 'Regulation for the Protection of Forests from Diseases and Insects' in 1989. In order to satisfy the needs of forestry management under a system of market economics, a new revision was passed in 1998.

After the establishment of new China, forest ownership was reformed with land reform. The general policy of forest ownership can be outlined as the following: large areas of forest belonged to the state; small areas of woodland belonged to the town, village, or individual according to the convenience of management and production. Woodland previously belonging to individuals or farmers still belonged to them. Supported by the government, farmers strengthened forestry production and accelerated forestry development.

From 1956 to 1979, the government guided forest farmers in a socialist way. The first step was to establish a socialist agricultural cooperative community (SACC). The second step was to incorporate a forest cooperation community into the SACC. The third step was to convert the private forest farmer. At first development was fast. Then all cooperative communities were transformed into the People's Commune. During the years of the People's Commune, forest ownership was destroyed. Forestry production collapsed.

After 1978, forestry production was normalised. The State Council drew up

'Twenty-five Rules of Forestry'. The whole country acted on the principle of 'Three Fixations' which means fixing of forest and mountain ownership, fixing the boundaries of private mountains, and fixing the forestry contract responsibility system. The forestry production system was based mainly on state ownership while other (e.g., private and collective) ownership acted as subsidiaries.

3.4.2 Forestry Administration

Administration of forest resource conservation and forest-industry development is the responsibility of the government. According to the Forest Law, the special forestry administration agency of the State Council is responsible for forest management in the whole country. Special forestry administration agencies of the prefecture and county government are responsible for regional forest resource management. Town governments set up full-time or part-time positions for forestry administration. In the main forest areas, some forest stations are set up to strengthen local forest-resource management. Local governments at various levels organise related departments to set up forest management organisations (FMO) and appoint forest management staff (FMS). The main tasks of FMOs are forest conservation, preparation of contract agreements with units owning woodlands, and delimiting the boundaries of forest conservation areas.

The main tasks of FMS are monitoring woodlands, stopping behaviour that destroys the forest, and asking special government agencies to punish people who destroy the forest. Their tasks involve forest resource surveys and forest classification, timber-storage measurement and establishment of forest archives. They also undertake long-term planning for forest resource management and trade; prevention of forest fires; prevention of disease

and infestation; management of felling and renewal; management of timber transportation and trade; and management of tree planting.

2.4.3 Afforestation Policy

In 1981, a 'Decision on an Obligatory Tree-Planting System' was passed in the NPC and 12 March every year has been appointed as a tree-planting festival. According to 'Enforcement Procedures on the Forest Law of the PRC', the goal of afforestation is to reach 30 per cent forest cover.

In 1976, YPG made a policy to establish two kinds of forest base: a timber-forest base and an economic-forest base. For Luquan County, the coverage rate should reach 70 per cent in mountain areas, 40 per cent in hill areas and 10 per cent in the plains.

3.5 Policies on Natural Reserves

3.5.1 National Policies on Natural Reserves

In 1956, the Ministry of Forestry drew up a 'Demarcation Draft on Felling in Forbidden Zones of Natural Forest' (natural reserves). In 1962, the State Council issued the 'Instruction on Active Conservation and Reasonable Utilisation of Wildlife Resources'. In 1963, a 'Provision on Forest Conservation' was promulgated by the state. In 1979, the state issued the 'Law on Forest' (trial) and the 'Law on Environmental Protection' (trial). In 1980, the Ministry of Forestry and the Chinese Academy of Sciences together with six other ministries and commissions jointly issued the 'Notification on Reinforcing Administration and Scientific Investigation of Natural Reserves'. Subsequently, the NPC and the State Council continued to issue a series of laws and stipulations on natural reserves. In 1981, the State Council ratified the 'Procedures on Management of

Shotguns'. This aims to control the hunting of wildlife. In 1984, the NPC issued the 'Forest Law of the PRC'. In 1986, the 'Enforcement Regulations on the Forest Law of the PRC' were ratified by the State Council and issued by the Ministry of Forestry. In 1985, the 'Procedures of Administration of Wildlife Types and Natural Reserves' was ratified by the State Council and issued by the Ministry of Forestry.

In 1987, the State Council issued the 'Outline of Natural Reserves in China'. In 1988, the Ministry of Forestry addressed the 'Notification on Reinforcing Management of Forestland Ownership'. In 1988, the NPC approved the 'Law on Protection of Wildlife of the PRC'. In 1992, the 'Enforcing Regulation on Protection of Terrestrial Wildlife' was ratified by the State Council and issued by the Ministry of Forestry. In 1990, the Ministry of Forestry, Agricultural Ministry, Ministry of Economics and Trade, the State Customs' General Administration, and the Bureau of Commodity Inspection and Testing jointly issued the 'Notification on Reinforcing Management of Exportation of Precious Wild Birds, Game, and Ornamental Wildlife'.

In 1990, the People's Supreme Court and Procuratorate, together with the Ministry of Forestry issued a 'Notification of Strict Prohibition of Illegal Hunting, Purchasing, Scalping, and Smuggling of Wildlife'. These laws and stipulations laid a firm foundation for natural reserves in China. Moreover, the State Administration of Land and the National Environmental Protection Agency jointly issued the 'Procedures of General Administration on Lands of Natural Reserves'.

3.5.2 Policy and Stipulation of Natural Reserves in Yunnan Province

There is a special diversity of environment and biology in Yunnan Province. There-

fore, the establishment of natural reserves in Yunnan not only helps to prevent land degradation, but also conserves biodiversity.

In 1981, YPG issued a 'Notification on Establishment of Natural Reserves' and approved a report on establishing 35 natural reserves drafted by the Agricultural Office of Yunnan Province. YPG issued 'Provisions on Enforcement of the Forest Law and Regulations for Its Implementation in Yunnan' and the 'Detailed Regulations of the General Administration for the Forest and Wildlife of Natural Reserves in Yunnan' (in 1987). In 1989, the YPG issued a list of precious protected wildlife in Yunnan, according to the 'Key Wildlife List in China', and a list of key protected wild plants in Yunnan. In 1991, the YPG issued a 'Notification on Practicable Reinforcement of Wildlife Protection and Prohibition of Illegal Activities', and addressed the 'Bulletin on Wildlife Resources' in Yunnan. Kunming transmitted the 'Quarantine Committee for Animals and Plants Notification on Reinforcing the Management of Exportation of Precious Birds, Game, and Ornamental Wildlife'.

In 1995, the YPG issued the 'Provisions on Protection of Precious Plant Species in Yunnan'. From 1981 to 1983, YPG organised overall planning and investigation for 30 natural reserves. From 1983 to 1985, the YPG formally approved and established 30 natural reserves. Up to now, the total areas of natural reserves amount to 1.34 million ha—including Dianchi Lake, Stone Forest, Chang Mount, and the Er Sea. These natural reserves comprise 3.4 per cent of the total land area of Yunnan.

3.5.3 Policy on Natural Reserves in Luquan County

In 1986, technicians from the Forest Bureau of Luquan County and the Southwest Forestry Institute carried out a com-

prehensive investigation of Jiaozi Mountain (part of Wumong Mountains) in the county. They concluded that the mountain was typically diversified in environment and biology and suitable for the establishment of a natural reserve. They submitted the 'Proposal on Establishing Wumong Mountains' Natural Reserve in Central Yunnan' to the relevant agency. In 1989, the government of Luquan County ratified the Jiaozi Mountain as a natural reserve and scenic spot. In 1992, the government of Kunming City brought it into the planning of tourism exploitation in Kunming. In 1993, the YPG listed the Jiaozi Mountain as a Scenic Spot at the provincial level.

There exist about 30 species of mammals and 100 species of birds in Jiaozi Mountain. Of them, 11 species belong to the national protected animal list. There are also some rare plant species and more than 1,000 species of Chinese herbal medicine, of which 200 are frequently used.

3.6 Population Control and Poverty Elimination Policies

3.6.1 Population Control and Family Planning Policies

The main focus of population control policies in China is family planning. The policy aims to achieve the following goals.

- Improving population quality. This kind of policy aims to improve the moral quality, physique, and quality of education and science-technology of the whole nation.
- Adjusting population structure and distribution. It is inevitable that population structure will change from young to old because of family planning. The state will adjust the policy of family planning and actively establish a pension system. The adjustment of

population structure will gradually change the population from more rural to more urban.

- Population migration. The state encourages migration from densely populated areas to sparsely populated areas.

In 1980, the government made a stipulation that couples in governmental, entrepreneurial, institutional, and collective units must not have more than one child. Couples with one of the following conditions are allowed to have another child: the first child is disabled and cannot work normally in the future; the remarried couple have only one child in total; and having adopted a child, the couple have the ability to give birth later. For rural women, one birth is best and two is the most.

Both the birth rate and natural growth rate are high in Yunnan Province. There are 26 nationalities and their population amounts to 30 per cent of the total of Yunnan. Population density has gradually increased, but it has not unbalanced the province. There are more and a greater density of people in the east than in the west.

According to national policies, the government of Luquan County encourages one birth, controls two births, and curbs three and more births.

3.6.2 Policies of poverty elimination

Today, poverty is a universal socioeconomic problem. As Blaikie (1987) indicated, land degradation may be a symptom of a deeper set of socioeconomic problems. Land degradation is closely related to poverty in China.

Since 1978, the central government has drawn up 16 policy documents successively concerned with poverty elimina-

tion. The State Council issued the 'Notification on Supporting Poor Areas to Change the Conditions of Poverty' (in 1984), the 'Notification on Strengthening the Economic Development of Poor Areas' (in 1987), and the 'National Programme on Specialising in Poverty Elimination' (in 1994). In 1996, the Central Committee of the Party and State Council made a decision to solve the problem of poverty in rural areas as quickly as possible.

The basic policies of poverty elimination and development in poor areas can be summarised as follow.

- Identifying poor counties and investing national capital for poverty elimination, including a financial fund for development and a credit fund for poverty elimination.
- Making preferential policies of resource development for poor areas and allocating large construction projects in the main poor areas in order to improve the infrastructure and promote the development of a regional economy.
- Cutting or waiving agricultural tax in some poor areas, waiving the duty of grain payment for people living below the poverty line, and waiving income tax for all enterprises in a poor areas for three years.
- Broadening and developing cooperation with other international organisations.
- Setting up protective and indemnified policies for fundamental farmland and its fertility, and offering policies safeguarding culture, education, health, science, and technology for poor areas.
- Taking poverty elimination as the central task of economic development in poor areas and supporting counties that have eliminated poverty to consolidate the achievement.

For implementing national policies of poverty elimination, YPG has worked out specific and practical policies according to the provincial conditions.

YPG issued some 'Stipulations about Tax Exemption in Poor Areas of Yunnan' (in 1984) and some 'Practical Measures to Strengthen Work in Poor Areas Towards the Rapid Eradication of Poverty' (in 1986). They include specific policies and regulations on such issues as developing resources, initiating non-public businesses, ensuring unblocked circulation of commodities, developing science and education, and reducing the burden on farmers in poor areas. In 1987, YPG transmitted the 'Provision on Finance Administration in Poverty Elimination', which was issued by the State Council. In 1988, YPG transmitted the 'Interim Provision on Measures of Economic Development in Poor Areas in Collaboration with the Developed Areas', which are being promoted by the Agricultural Development Bank of Yunnan Province. In 1989, the Tax Bureau of Yunnan Province promulgated a 'Stipulation on Tax Exemption in Poor Rural Areas'.

In 1994, a programme of poverty elimination in Yunnan Province was worked out. Its objective was to help seven million poor people in the province to overcome poverty within seven years. Specific measures included development of township enterprises and auction of use rights of barren mountains and uncultivated land, water, and beach. In 1995, YPG promulgated the 'Decision on Winning the War against Poverty during the Ninth Five-Year Plan'. It made a provision that the government would supply a special fund of 0.3 billion yuan to support the poor every

year from 1996. In 1996, the 'Provision of the General Administration on Special Capital for Poverty Elimination' and the 'Provision for Collecting Poverty Elimination Funds from Construction of Electricity Structures' were put forward.

In 1986, Luquan County was classified as a poor county that should be supported by the province and the country. The local government has been working to help the poor since 1987. The aim of activities has changed from being to help the poor to providing education, and from finance-importing to capacity-building.

The national government and the local governments of Yunnan Province and Kunming City have provided large development funds for poverty elimination in Luquan County. During the period from 1980 to 1990, funds totalled 15.37 million yuan, of which 7.14 million yuan were used for agricultural development, 1.62 million yuan for industry, 2.63 million yuan for science, education, culture and health, and 3.95 million yuan for other uses. In addition, aid amounted to 6.18 million yuan. By the end of 1990, 193,200 people had shaken off poverty. However, there were 57,900 people still classified as poor.

The World Bank is supporting projects for poverty elimination in southwestern China. It attempts to solve the problem of the impoverishment-degradation spiral in the poor mountain areas of Guangxi, Guizhou, and Yunnan provinces through non- or low-interest loans for the construction of infrastructure and environment. Several projects were initiated in 1995 with a total credit of US \$ 620 million.