

## Rural Development in China: New Challenges in a New Landscape

**Background:** Two decades of economic reform have changed the economic landscape of China. Per capita grain output has reached developed country levels; many farmers shifted into higher valued crops, making decisions increasingly on market-oriented principles; the research system has helped push up productivity by almost double the rate of population growth, and the nation has by far the most sophisticated agricultural biotechnology program in the developing world—indeed many of its breakthroughs are of global importance. Rising food exports demonstrate that China's farmers are now able to compete in international markets. Off the farm, more than 40 percent of rural residents have employment; and about 100 million of them have moved to urban areas for employment. Rural incomes have risen dramatically and hundreds of million of people have escaped poverty during this time. Growth in agriculture, non-farm employment and rural industry and the transformation of domestic and international markets have changed the face of rural China and are playing key roles in the nation's modernization.

While the new landscape should fill leaders with optimism, there are still great challenges ahead. With the transition from planning in the rural economy mostly complete, China's main challenge has shifted to one of development. In China's new environment the main metric of success will be the extent to which the rural economy can become an integral part of the nation's push towards modernization. For China to successfully modernize, the nation's economy will have to experience a fundamental transformation—from rural to urban and from agriculture to industry and services.

The necessity of this shift is not only borne out by the development experience of every other high income country in the world (there are *no* middle or high income countries in the world that have more than 10 percent of their population engaged in agriculture), it is consistent with the nature of China's economy. Land holdings are so small and other resources are so scarce that farming cannot raise the incomes of most households. China's policy effort largely needs to establish linkages between rural and urban areas and encourage the shift out of agriculture. The most important policy measures are those that improve the quality of rural China's human and physical resources and infrastructure that will provide the skills and abilities to rural residents that seek to integrate themselves into the nation's industrializing and commercializing cities. Successful development policy, however, must also recognize that modernization is a long process that will depend on maintaining a healthy agriculture and rural economy.

**Strategic Objectives:** In their pursuit of rural development, policy makers face two fundamental and inter-dependent tasks. *First*, the new era reformers are going to need to change the organization of government. A new framework for managing fiscal and other governmental matters is needed to meet the needs of the modernizing and increasingly market-oriented economy. The new institution also needs to instill a new ethic into government; officials need to change their role, becoming facilitators of economic growth and equity, not direct actors. Reformers also need to encourage the emergence of new partnerships with rural citizens. China needs to promote Farmer Professional Associations that can help in the process of development and assist government in taking care of vulnerable groups.

*Second*, a concentrated effort is still needed to improve the resource base of the rural economy. Despite the great progress of the past 50 years, many parts of the agricultural and rural sectors remain underdeveloped. There are 50 million more farmers in China than at the beginning of reform. Farms are fragmented, small and getting smaller. Other resources—water and forests—are just as scarce. Farm prices, at least for certain commodities, will almost certainly fall as the nation implements its WTO commitments. In such an environment the state and its partners have much to do to help farmers increase their resource base. China's most abundant resource, its rural population, needs to be the target of a sustained drive to increase its human capital. Land, water and forests also require large investments and new institutional arrangements that can increase the productivity and incomes of households. Millions of people remain at or under the poverty line; most are poor farmers in remote, mountainous areas of China's western provinces. In short, if the government can create the new institutions to transform the government role in development, foster a new partnership with the people and improve the resource base, rural incomes can rise and the rural economy will be a force in China's modernization drive.

**Rural Development Plan:** While a rural development plan has many components, we restrict our attention to three broad issues: (a) the nature of China's new economic landscape and measures to enhance it; (b) changes that are needed to improve rural government and its partnerships with the rural population; and (c) reforms and investments that can improve China's resources: labor, land, capital, water, forests and the environment of the poor.

### *Enhancing China's New Landscape*

China's rural economy is on the brink of a new era. Much of the rural economy has successfully passed through the transition from a planned economy to one that is more market oriented, and most inputs in China's rural economy are now under the control of farm households. The government can lead China into a new era by redefining key food policy priorities; fostering markets; completing a set of grain marketing reforms; and continuing to integrate China into international markets.

*Changing Priorities on Food Security:* With such a large population and limited resources, China's leaders have always placed a high priority on food security and their efforts have made remarkable progress. Since 1983 China has been a net food exporter. Even if the nation completely liberalized all trade (which is beyond its current trade commitments), by 2020 rice and wheat will still be almost fully produced in China. Although the nation will be a net importer of maize and soybeans, by 2020 the export of vegetables, fruits and livestock and aquatic products will grow faster. With such a strong agricultural sector and the need to raise rural incomes, China should change the priority that it places on national grain self sufficiency. The recent policies to promote crop diversification are appropriate—as long as the planting decisions are made by the households themselves. Trade policies that artificially restrict grain imports also are not needed for national food security. Protectionist measures not only create international tensions, they cause inefficiencies and stifle structural change. Self sufficiency policies also slow down exports of labor-intensive, higher-valued products and reduce rural incomes. Other countries will keep their borders closed until they perceive that China is

fulfilling its trade agreement promises. And, of course, even if at some future time the nation needs more grain, the land is still there and grain can be grown at any time.

Instead, a redefinition of food security is needed. In place of national food security, leaders should shift their attention to measures that promote *household food security* among China's poor. China's main food problem is one in which the poor are not always able to provide their family members with enough nutrition, health or education. Since the problems are essentially those targeted by China's poverty alleviation program, the current investment approach in poor areas that increases the productivity of the resource base and encourages diversification also will have the secondary effect of improving household food security. It is time that China makes this the new thrust of its food security policy.

*Fostering Domestic Markets:* Few accomplishments can rival the government's liberalizing of domestic markets over the past 20 years. The cost of shipping goods across China has fallen dramatically; the cost of shipping maize, rice and soybeans across the Northeast or down the Yangtze River is about equal to the cost of shipping grain down the Mississippi River in the US. Markets also have integrated rapidly; by 2002, prices between almost all pairs of markets across China—even those as distant from one another as Xian and Guangzhou or Heilongjiang and Shanghai—move consistently together for all major crops. Part of the improvement in domestic market integration is due to the construction of roads and improved communications. The improvements in China's market also are from rising competition; since the mid-1990s, thousands of private traders have entered the commodity markets and arbitrage away price differences between regions. An important exception to this positive trend, on the input side, is the seed market, as raised in section *Deepening Integration* below.

With such well-functioning domestic output markets, it is not surprising that the government is considering the implementation of a new set of grain policy reforms. Although such experimentation is preliminary it is vital. However, the grain reforms may be most successful if they adhere to certain principles. While limited payments to farmers may make sense to facilitate structural adjustment, international experience suggests that China will not benefit from providing direct payments to farmers. Therefore, before making such a commitment the Government needs to realize that in countries that once started, the farming population quickly began to believe that they are entitled to permanent support from the Government and often it is difficult to eliminate such program. *Instead, newly available resources should be channeled into public goods.* At the very most, payments should be made for a limited number of years. Payments should also be de-linked from production decisions. Careful attention also is needed to set up a system that ensures payments actually reach households. Targeting should be based on easily observable indicators (e.g., county-level cropping patterns and yields). The payment process also should be simple and use easy-to-observe criteria (e.g., provide payments to farmers based on their holdings of "responsibility land"). The program should be highly publicized so that farmers who are entitled to the payments can get them. China's agricultural policies are among the least distorted in the world. China should take pride in this and treat it as a valuable asset. To modernize, China does not need to make direct payments to farmers. By avoiding such payments, China will quickly become known as an efficient manager of its agriculture.

*Deepening Integration Across the Border:* Although there are concerns about the impact of an increasingly open economy on China's producers, there are many reasons to believe that the nation can benefit greatly by carrying out its WTO agreement with only a minimum negative impact.<sup>1</sup> Workers gain access to employment. Consumers benefit from lower prices. All producers benefit from lower fertilizer prices. Producers of rice, most vegetables and fruits, many livestock and aquatic products and other higher-valued, labor-intensive goods also will benefit if WTO leads to higher exports. While producers of barley, soybean and other edible oils were hurt by liberalization during the 1990s, most of the fall in the prices of these commodities had already taken place prior to the WTO agreement, so the agreement will have little effect. Only maize, cotton and wheat farmers will be adversely affected. However, because most farmers are highly diversified and are able to change products if prices fall, the overall cost will be small. The only groups that are likely to need support are *poor* maize, cotton and wheat producers in the Central and Western parts of the nation. According to China's own estimates, however, the annual loss due to WTO to these households (who are the most vulnerable of all households) only averages about RMB50 per household. A policy that compensates such households by RMB50 per year for the first several years after WTO (e.g., through a direct payment policy or a policy that eliminated tuition and school fees for households in these areas) would more than offset the negative consequences.

To get the most out of its trade policy, however, China needs to make complementary policy efforts. Chief among these is to allow farmers to have access to the lowest priced and most productive inputs and technologies from inside or outside China. The WTO agreement challenges China's farmers with competition in output markets from producers in the rest of the world. To compete, farmers need to have access to the same low-cost inputs and same high-quality technologies. There are many restrictions keeping seeds and other inputs from moving around the country. There also are barriers against the importation of inputs and technologies or investment by foreign technology firms. These should be sharply reduced and eventually eliminated in order to improve the income of farm households. According to international experience the entry of foreign seed and technology firms into the country could lead to both more competition and better transfer of technology.

### *Restructuring Rural Government and Partnerships*

In trying to promote rural development in China's more market-oriented environment and to take advantage of the rural economy's dynamism, reformers need to reorganize government, especially the way it manages and monitors fiscal expenditures. Reformers also need to encourage the emergence of Farmer Professional Associations and other rural interest groups that can partner in the process of development.

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<sup>1</sup> China has promoted international trade, reducing average tariff rates, removing licensing requirements for many commodities, reducing the role of state trading and allowing thousands of enterprises to engage in the import and export of most goods. For example, average tariffs fell from more than 50 percent in 1991 to around 20 percent by the end of the 1990s. During this time, the total value of China's agricultural trade grew by about 6 percent annually and the growth of agricultural exports has exceeded that of imports.

*Rural Fiscal Policy:* The conduct of public finance is arguably one of China's biggest problems. The fiscal system, as designed, is out of date, generates inadequate revenues, poorly redistributes collected revenues and does not provide enough public goods. There are problems on the side of expenditure and revenue mandates at the sub-national level, as well as the way government transfers work. The problems with the provision of public goods and services for the agriculture economy, and more generally for rural development, are a subset of the larger problems with inter-government finance in China, and need to be addressed in the context of a broader public finance reform program.<sup>2</sup>

Examined from this point of view, the recent Tax-for-Fee Reforms, while well-intended, are unlikely to solve rural China's fiscal problems. Tax-for-Fee is an attempt to reduce the tax burden of farmers in a system that is already characterized by deficient revenue generation and public service spending at all levels. Studies have shown that not only are savings to farm households minimal (only around RMB30 per household), when collections fall, public services fall. Fiscal resources in poor deficit areas are already insufficient to meet the investment requirements. Over 70 percent of counties and townships are in chronic deficit. While there are many adverse consequences of the indiscriminate fee collection, the root cause may be the system's own design. Increased pressure at counties and townships to generate revenues to meet the system's un-funded mandates leads to excessive fee collection. The tax system, which remains heavily industry-based, can distort investment incentives and induce local governments to promote industrial development even in areas without a comparative advantage in manufacturing.

The reforms need to go beyond Tax-for-Fee Reform and consider the way expenditures are managed. The first step needs to be a review of the public goods and services that are needed in rural China. Realistic goals and priorities should be established for their provision. Each level of government needs to be handed clear responsibilities for the provision of a subset of the public goods. The resources needed to provide the public goods also need to be clearly defined. Leaders need to insure that sufficient resources are available to support the expenditures needed to meet their mandates. In the process, expenditures also need to be reorganized. Many tasks can be relegated to non-state entities. Many countries in the world have used alternative institutional arrangements to deliver key rural public goods without the direct involvement of the government. The rapid expansion of China's non-state sector, particularly in the area of services, means that such a restructuring of the government role could relieve some of the pressure on public finance, and possibly improve the quality of public services to support rural activity. Even though such reforms in China will be disrupting, they need to be implemented in a comprehensive way. To minimize the disruption for the nation as a whole, we believe rural fiscal reforms can begin with regional experimentation, once the nationwide crisis in inter-government finance is addressed.

*Role of the State and Rural Partnerships:* At the base of the rural public finance reforms lies a shift in the role of the state and development of new partnerships with citizen groups to carry out efficient and equitable growth. Although the Government moves out of the direct provision of

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<sup>2</sup> See accompanying World Bank Policy Note on *Public Finance Reform and Macroeconomic Management* for details on a proposed reform program., including an examination of the rural Tax-for-Fee pilot.

many goods and services, it needs to be redirected to providing public goods, overcoming market failure and providing useful services that the private sector is unlikely to find profitable. To effect these changes, the main task of leaders is to comprehensively redefine the role of government and make explicit to various levels of governments, bureaus and individual leaders what they should and should not be doing. Also, as the government gets of direct production, it will be in a better position to create, implement and coordinate policies that involve conflicting goals. An example is the poverty alleviation policy to raise livestock (goats, sheep) in unsuitable areas resulting in serious environmental damage. Some sub-national governments have taken drastic but effective measures to manage natural resources while still helping the poor, but others need better guidance.

In a modern society which is dominated by markets and assets and information are mostly in the hands of private individuals and enterprises, the government needs partners to carry out its tasks. China should begin to encourage the development of truly independent Farmer Professional Associations (FPA) as well as other information networks, business support groups, marketing systems and credit cooperatives. Today such institutions are still very weak in China. While there are more than 100,000 farmer associations, their membership accounts for only about 4-5 percent of all farmers and the structure of most is still ill-defined.

Although the impetus to meet and act as a group must be from the farmers themselves, the government can create an environment in which FPA can thrive. *First*, leaders need to develop laws and regulations that promote and protect FPA. The legal status of groups needs to be clear. FPA need to have the ability to enter into contracts and take loans. Also beneficial would be regulations that enable farmers to organize themselves into locally-run credit cooperatives. FPA need the authority to be able to act for the members of their group as well as to be subject to well-designed regulations that protect the membership from the leadership, including the way in which the leadership is selected and monitored. *Second*, the experience of FPA in other countries has shown that even when a favorable legal and regulatory framework exists, an independent catalyst (that is, someone or group outside the government) is often needed to get FPA started, expand and perform better. While China has a number of FPA-promoting agencies, these institutions are controlled by the Government. Alternative models should be sought to create catalysts that are first and foremost responsive to the needs of farmers' and FPAs. The main role of such an advocacy organization is not to control FPA, but to facilitate their creation and provide information that allows its members to promote the interest of the association.

### *Investing in Rural China's Resources*

Improving the productivity of resources should have a direct effect on the welfare of rural residents—by raising their incomes and making them less vulnerable to risk. Having a better resource base also will provide farmers with the means for making major decisions to move off the farm, migrate to the city or to make productive investments.

*Preparing Labor for Migration Out of Rural Areas:* Development is more than making the farming sector more productive. Access to off-farm jobs is the conduit through which occurs the shift of population from rural to urban occupations and from agriculture to industry and services. Although China has been late in starting the demographic transition, in recent years the status

quo has changed faster in the off-farm sector than in any other. The beginning of the breakdown of many barriers in both rural and urban areas in the mid-1990s started an unprecedented, and perhaps irreversible, flow of labor to the cities. Despite the macroeconomic conditions of the late 1990s, the surge in off-farm employment not only continued after 1995, it accelerated. Almost 80 percent of rural households have at least one member in the off-farm sector. But the current labor flows are different from those in the past. For the first time rural workers show signs of specialization. Young workers—both men and women—are much less likely to work on the farm than older workers. In 2000, more than 75 percent of men and women between 16 and 25 worked in the off-farm sector, almost double the rate of 16-to-25 year olds in 1990. Almost all of them live away from home. They are not working in local enterprises. Most of them are moving increasingly far from home. Perhaps most important, many of the young people that work in off-farm jobs have never farmed. Firms with migrant workers have much higher efficiency and exporting firms employ a higher proportion of such workers than firms producing for the domestic market. Employment off the farm is the main way that rural residents increase their incomes and attenuate inequality among regions and sectors and is one of the most important determinants of poverty alleviation.

Despite the progress, the movement of workers off the farm has just begun and there are many barriers. Because the ability to find a job off the farm is inextricably tied up with human capital, investment in education and health will do more to facilitate off farm employment than any other policy. Since the beneficiaries of human capital investments are those outside the immediate rural community (i.e., the factory owners in industry and consumers of services in urban areas), international experience shows that the central government must take responsibility for investment in rural education and health. In recent decades, however, rural education and health have been left mostly on the shoulders of local governments and the poor households, although noteworthy efforts have been made in the past several years to increase the funding of rural schools, especially in poor areas. Complementary policies—in both the rural and urban sectors—also could help encourage the rise of off-farm employment and contribute to the increase in productivity that occurs when rural residents move to urban areas: investment in rural health; policies that encourage the expansion of rural industries; the relaxation of employment regulations in urban industries; easier access to urban housing, education and social services are some examples.

*Raising Productivity on the Farm:* China's research system has increased productivity for major staple crops at more than 2 percent annually during the reform era, a rate of growth that is considered healthy by international standards. More than 60 percent of China's productivity rise came from new technology. China's investments in biotechnology raised the productivity of cotton producers by nearly 25 percent and improved farmer health. However, the traditional system of research faces great challenges. Agricultural research in China, which is almost totally publicly funded, has always been focused primarily on the grain crops in irrigated areas. More than 80 percent of China's research budget was targeted at the major staple crops. With scarce financial resources, sub-national governments (which have accounted for most of China's agriculture research—a feature that is unique to China) have become reluctant to invest in research and extension. Despite recent increases, China still invests less than 0.5 percent of agricultural GDP in R&D, a level far below other countries. Unfortunately, few resources are targeted at the problems faced by either farmers in poor areas or to the basic research that can

support new technologies to support a move into high-valued crops that are in demand in urban and export markets.

Given the small size of China's farms and likely post-WTO competition, the Government needs to keep the nation at the forefront of technological development in order to raise farmer incomes. Investment in agriculture technology needs to be raised sharply. Spending on agricultural research in China should be maintained at a level that is at least 1 percent of agricultural GDP (compared to the US, Canada and Australia, which regularly spend between 2-4 percent of agricultural GDP). The funds need to be better targeted. In the same way that the Government has reformed research in other sectors by focusing funds on the best scientists, promoting competitive grants and commercializing certain tasks (e.g., in the case of agriculture—the development of hybrid maize and certain horticultural crops can be performed by the private sector, as they are in most other countries), agricultural research reform is needed. While high potential projects should be supported, administrators need to set aside funds that will benefit farmers in poor areas. A policy that encourages the emergence of private research and seed firms is needed to take advantage of the ideas, capital and entrepreneurship of individuals.

China also needs to maintain its position as one of the global leaders in agricultural biotechnology. In the late 1990s China invested more in agricultural biotechnology research than all other developing countries combined. Its public spending on agricultural biotechnology was second only to the US. In recent years there has been increased support for research. While such investments have created a great deal of potential, the gains need to be realized. Large increases in productivity and health are possible when scientists are allowed to commercialize their products. This suggests that the government move forward with its commercialization of selected crops, such as *indica* rice, wheat and certain other crops. Recent research shows that consumers in China currently are accepting the new technologies; they have opinions that are more similar to US than European consumers. The promotion of new bio-technologies, however, delivers highest returns when products are channeled through an effective bio-safety system that allows commercialization only when they are safe, and keeps unapproved products off the markets. Therefore, investment is needed in the regulatory system that monitors the biotechnology program during research and after commercialization. As in the case of cotton, China has benefited greatly from the participation of foreign firms and farmers have gained high returns from using imported technology.

*Encouraging Land Rental Markets:* Secure property rights and well functioning land markets are considered important catalysts for economic growth, as they make investment worthwhile and facilitate transfers of land to the most efficient users. The efforts of the central and local governments over the past decade and the new Rural Land Contracting Law have solved most of China's land tenure security problems. Poor tenure security seems to have only minor effects now on either agricultural investment or production efficiencies. It is important, however, that central and sub-national governments make a strong and sustained effort to implement and enforce the new regulations. To do so, the central government needs to make repeated efforts to publicize through the various channels the salient clauses that affect farmer rights. Strong directives through both the Government and Party hierarchy need to convey the importance of the Law.



In addition to implementing the new Law, additional efforts—especially in the area of land registration—are needed to promote well functioning land rental markets. In an economy such as China's (scarce land; off-farm employment becoming the main source of future income for *most* farmers; Government unable to use price policy to inflate returns to land), households with opportunities off the farm need to be able to rent their land out, and those that are left in the village need to be able to rent land in to be able to raise their incomes from farming.

Although rental transactions should occur between households that are seeking to improve their welfare, there is a role for Government in promoting the mobility of land among users. World Bank experience in other countries indicates that land registration can lead to increased rental market activity and lay a foundation for banks to begin to use land for collateral for loans. In general, registration gives additional protection to farmers by improving transparency in different types of land transactions. Moreover, if it is administered at a high enough level, farmers across large regions can be provided uniform certificates of documentation and this will broaden the market and make registration more valuable. For these reasons, a provincial level pilot for Land Use Rights Registration may be tried. It has been shown in other countries that land registration is one of the World Bank's most productive and welcome loan packages (in terms of its impacts on raising the productivity of the agricultural economy) that is done with a minimum burden to the Government (land registration loans are largely self-financing, since registration fees paid by farmers are usually sufficient to pay back the entire amount of the loan).

### **Experimenting with Rural Finance**

The development of rural finance is a pressing issue. The effective implementation of many other policies (e.g., those that promote migration) and investments (e.g., those that encourage the creation of new technologies) rely on an effective rural financial system. Low levels of financial intermediation have affected the rural economy. According to one study, RMB1.3 trillion (in 2000 prices) of savings have moved from agriculture to industry between 1980 and 2000; RMB2.3 trillion flowed from the rural to urban economy. While this direction of the flow is to be expected during development, the size of the flow is worrisome.

International best practices suggest that the goal of rural financial reform in China should be to create a competitive, independent (from local government officials), market-driven and sound rural financial sector in which there is separation of commercial and policy lending, flexible interest rates and a wide variety of financial instruments (e.g., both short and longer term loans and deposits) available to borrowers and savers. The Government should begin to launch experiments to move in that direction as soon as possible. Experiments can be regional, focused on state-run banks and rural credit cooperatives (RCC) and designed with true experimentation in mind. Some of the early experiments could be done in the coastal areas since this is where the demand for credit is highest and the institutional environment in the banking sector most ready to change. The experiments need to examine a number of dimensions of the banking reforms, including: allowing interest rates (on loans; not deposits) to float in some areas, while restricting them in others; allowing the entry of other rural financial institutions, including private banks, in some areas and not in others; and providing deposit insurance in some and not in others. The

key to the reform, however, is that the governance of the experimental banks needs to mimic those of a truly commercial bank. This can be only done if those that lead the experiment take full control of the banks in the experiment and seek to protect the capital of the bank, make the assets grow and seek to earn sustainable profits. In any experiment, banks need to be free from interference from local officials.

Similar experiments can be done in the central regions of China, although differences in the economic environment and status of the portfolios will necessitate that the experiments will vary somewhat. Specifically, it is possible that in some areas, because the economy is growing slower, there will be less interest by private banks to enter. The existing financial institutions in central China, mostly RCC (and ABC in the areas in which they have not withdrawn) are also frequently burdened with many non performing loans. In such an environment—that is in one in which there are only heavily indebted state-run financial institutions that will not face competition from private bank entry—it is possible that a program of reform like that being advocated for coastal areas would fail. The danger is that even if managers were given better incentives and more authority to increase deposits and make loans, they would act in the same way as they did during the mid-1990s financial liberalization period (e.g., they could be inclined to continue to give loans for non-commercial purposes and not be overly concerned about making loans that could not be paid back).

To offset this tendency, reforms in the central region would need several additional components. *First*, the experiment office would likely need to allocate more human resources to monitoring the actions of the banks in the experimental area. *Second*, a package of incentives needs to be offered to local governments (especially in counties in which RCC are part of the pilot projects) that would make them (the *de facto* “owners” of the local RCC and the entity most directly responsible for its bad debts) encourage the local financial institutions to begin to operate as commercial concerns. Possible incentives include partial debt relief or promises of recapitalization. *Finally*, the experiments should encourage the emergence of non-formal financial institutions (such as, micro-credit programs and lending and credit programs run through new farming associations or other rural-based cooperatives). Some experimental areas may want to try to experiment with turning RCC into cooperatives or some other quasi-commercialized financial institution.

While the main experiments in market-oriented, rural financial reforms may be most instructive if carried out in the coastal and central areas, there is room for experimenting in poorer areas, where one of the main goals should be to establish a clear separation of commercial lending from policy lending. This can be done by moving out all policy lending from the ABCs and other state-owned commercial banks and moving them to the Agricultural Development Bank of China (ADBC). Although the ADBC would need to link itself with a network of local outlets (e.g., contracting with RCC to implement their lending programs), the program design, flow and management of funds and monitoring and evaluation could be clearly centered in an institution that has no commercial interests.

*Facing the Challenges of Water Management:* Water shortages pose a serious barrier to growth, are limiting efforts to alleviate poverty, and are becoming a major source of environmental problems. So far, no option has proved very successful in combating the problem

of increasing water shortages. Unfortunately, traditional policies either no longer work (e.g., investing in increasing the supply of water—most of the water in northern China is already being used) or do not lead to real water savings (e.g., the promotion of technologies such as sprinklers). Such strategies are unlikely to solve China's water shortages since they do not lead to real water savings. Even with South to North transfer projects, there will still not be enough water to solve the crisis.

With the failure and infeasibility of traditional methods, there is need to turn to more ambitious water policies. While a more complete statement of our recommendations can be found in *China: Water Resources Assistance Strategy, 2002*, we summarize here the steps that the Government must take in order to begin to manage north China's water resources. *First*, water savings in irrigated agriculture need to focus on reducing the water consumed per unit of crop production. This requires an integrated approach of improvements in irrigation technology, agronomic practices, and farm water management. *Second*, water management agencies need more authority to implement the difficult measures that are needed. *Third*, to achieve true water savings while avoiding inequitable outcomes, a system of water rights for *both* surface and ground water is needed, with rights extending to individuals that live in specific areas and the total amount of the rights limited to water availability after taking into account the environment and other needs. *Fourth*, after water rights are established, China needs to begin the investments and management shifts that will allow for volumetric pricing and regulation of water. *Finally*, with the institutions and facilities in place to implement a system of water rights and charge for water volumetrically, the nation can begin to move forward to raise water prices, promote new water saving technologies (ones that will lead to true water savings, such as, reduced-irrigation cultivation practices for wheat) and reform management institutions in order to achieve cropping intensity levels and cropping patterns, as well as municipal and industrial use levels that will be sustainable.

The efforts on the conservation side must be matched on the pollution abatement side in order to stop the mounting, and often irreversible, damage to China's water resources. Water scarcity is more critical when limited water resources become unusable because of water quality deterioration. In sum, it is not going to be easy to make the fundamental shifts, but of all the areas of resource management, getting water policy right may be the most important.

*Managing Forests and Grasslands:* Actions to improve the environment in the middle and upper reaches of China's main river basins are implemented through two directives. The National Forest Protection Plan (NFPP) banned logging in most of China's . A Slope Land Conversion Program (SLCP) began paying farmers in cash and grain for converting millions of hectares of fragile and erosion-prone cultivated land into forests and grassland. While the full benefits and costs of NFPP and SLCP will not be known for decades, there are a number of policy actions that should be taken to enhance benefits and minimize adverse consequences. *First*, the program has been successful in setting aside millions of hectares of land—much of it fragile and sloped land—and it has provided farmers with compensation that has more than offset their lost earnings. Most rural households support the current arrangements, although they signal that if the payments cease, they will be forced to begin to cultivate the slope lands again. Therefore, there is a critical need to diligently follow through with official promises: to make full, timely payments directly to households and to provide farmers with high quality,

appropriate forest and grassland technologies, giving households as much choice as possible. The programs are very generous, so there may be scope for some economizing later. The average payment to farmers in China (in PPP terms) is more than 10 times the average payment to farmers in the US Conservation Land Retirement Program, on an area basis.

With regard to the NFPP, as the logging ban nears its fifth anniversary, measures are needed to address some of the serious costs from its implementation. Although the employees of the state forest farms have been provided with unemployment insurance payments, there are many groups of people who have been affected by the ban but not compensated. With the decline of logging output, the tax revenues of many counties have plummeted and the services funded by them have been reduced or eliminated. Rural residents in many collective forests have suffered serious negative and uncompensated income shocks. While the strict NFPP regulations may have been needed to initiate a new era of natural forest management, today policy makers need to foster a more integrated forest management strategy by promoting sustainable use of the forestry resources.

Policies to address degraded grasslands have also been under active implementation.<sup>3</sup> However, a coherent strategy for developing pastoral areas and for addressing grassland degradation is still lacking, caught between policy objectives for livestock sector development and sustainable management of grassland ecosystems. As a result, grassland management programs remain almost entirely focused on “technical fixes” such as fencing, with less attention paid to social aspects and economic costs and benefits. Because of the multifaceted dimension of the problem, actions will need to be taken on several levels. Effective solutions are anticipated to be institutional, organizational and behavioral, as opposed to technical. Implementation of measures, including monitoring and enforcement requires community level participation. The required measures include: (i) improved information on the condition of grasslands; (ii) refined models of grassland ecology and better integration of inter-disciplinary approaches to design appropriate livestock management systems; (iii) articulation of the links between the biodiversity conservation and watershed values of grasslands and the economic benefits of development of pastoral areas; (iv) faster production and transfer of appropriate new technologies for grassland and livestock production; (v) improved market accessibility so that livestock off-take from the grasslands can be increased at critical times; and (vi) refined grassland tenure arrangements with emphasis on exploiting pastoralists’ traditional land tenure, assigning more authority to village-based institutions, and exploring alternative contracting methods, including community based grassland management.

**Policy Priorities for Rural Development:** This policy note has made both general and specific recommendations. Their implementation should enhance China’s economic environment for rural development, help restructure government and create new partners to share the responsibilities for development, and improve the productivity of rural China’s resource base. But not all policies can be implemented at once, and priorities need to be set.

(i) In implementing its new rural policy agenda, the two most important, but complicated, problems facing China’s rural economy are getting the fiscal and financial systems right.

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<sup>3</sup> About 35 percent of grassland is considered to be moderately or severely degraded.

(ii) While it may seem that progress in domestic market formation and trade liberalization make reforms in these areas less urgent, by pressing forward in these areas—e.g., by eliminating any remaining interregional barriers, liberalizing the imports and investments of seed and agricultural technology—China has a chance to make itself special among the nation's of the world.

(iii) With well functioning markets that transmit clear signals to producers and consumers, the investments in public goods and services will produce even greater returns. Reforms are furthest along in the areas of liberalization of labor and land.

- q Encourage the development of truly independent Farmer Professional Associations. To do so, the most pressing immediate needs are the creation of laws and regulations and advocacy groups that will promote the FPA.

- q Increase allocations (to at least 1 percent of agricultural gross domestic product) and implement research reform in agriculture (inclusive of poor regions).

- q Investments in education and regulations that break down barriers to labor movement will encourage off farm employment, the main conduit through which most rural residents will ultimately pass through to reach a modern life.

- q If China rigorously implements the land laws and begins provincial Land Use Certification programs, tenure security will be improved and farmers will be more willing to rent their land when the opportunity arises.

- q The problems of water are probably the most critical since they threaten long-run, sustained development in certain regions. Innovative experiments for water rights, volumetric pricing and other technology-based programs that can promote true water savings need to begin soon to find ways to rationally, efficiently and equitably manage the nation's water supply.

- q China also needs to continue to support and adjust its forest policies. Special, renewed effort with an emphasis on monitoring and local participation is needed to bring technology, education and a safety net to rural residents and the poor.