

RURAL ROAD MAINTENANCE IN CHINA

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ABSTRACT

The rural road is a vital building block of rural connectivity and plays an important role in the rural economy of most developing countries. Many countries have implemented impressive rural road development programmes. However, often they have not been equally successful in establishing a sustainable maintenance programme, which is vital not only to preserve the value of this important national asset but essential to provide continuing support to the growth of rural economy. In the Asia-pacific region, China has a high rate of rural road maintenance. An estimated 90 per cent of rural roads are now maintained. This article examines China's rural road maintenance system, especially the institutional and financial arrangements that have ensured such a high rate of maintenance. The article also provides descriptive details of the regulatory framework at the central level as well as government initiatives at local levels concerning rural road maintenance in China.

Key Words: Rural Road, Road Maintenance, China

INTRODUCTION

In China, rural roads are composed of county roads, township roads and village roads¹ which are defined at the administrative level rather than based on their functional level. County roads refer to the roads connecting counties. Township roads refer to the roads connecting towns, and village roads refer to the roads connecting villages. Rural roads play an important role in China's rural economic development and poverty reduction. In 2010, the total length of rural roads was 3,506,600 km, which was 87.4 per cent of the length of all roads in China². From Figures 1 and 2, it is evident that the length of rural roads have dramatically increased in the last decade and the proportion of rural roads has stayed high around 88 per cent of the whole road system in recent years.

Figure 1.

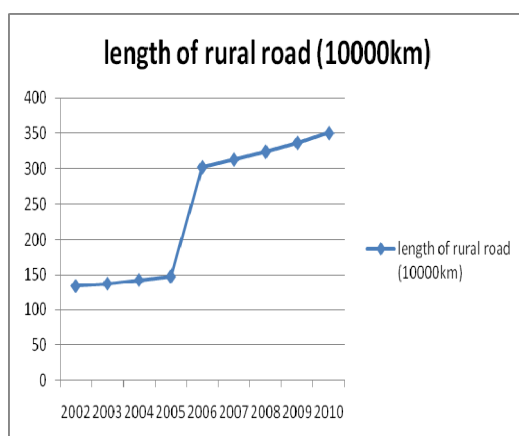
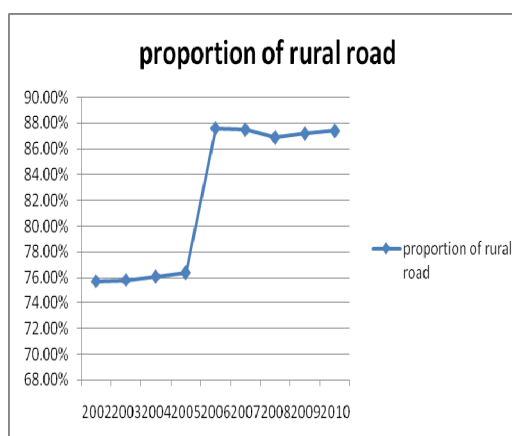


Figure 2.



Source: Statistical Bulletin of Highway and Waterway Transport Development, 2002-2010.

* The article is based on the work of the author when she was an intern at the Transport Division, United Nations Economic and Social Commission for Asia and Pacific (ESCAP).

¹ China's General Office of the State Council, The Plan of Reform of Management and Maintenance System for Rural Road, 2005

² China's Ministry of Communications, Statistical bulletin of highway and waterway transport development, 2010

As to road maintenance situation in China, the Statistical Bulletin of Highway and Waterway Transport Development indicate that the length of maintained roads in China has increased between 2002 and 2010. The proportion of maintained roads has reached more than 90 per cent (Figures 3 and 4), except for years 2006 and 2007. If it is supposed that all the non-rural roads are maintained, which covers about 12 per cent of all roads, the remaining 80 per cent maintained roads are rural. Since the rural roads cover 88 per cent of all roads, it can be said that about 90 per cent of rural roads are maintained. This indicates that the rural road maintenance in China has reached a high level.

Therefore, to see how the rural road maintenance mechanism works in China is very significant to come up with valuable experience for other developing countries.

Figure 3.

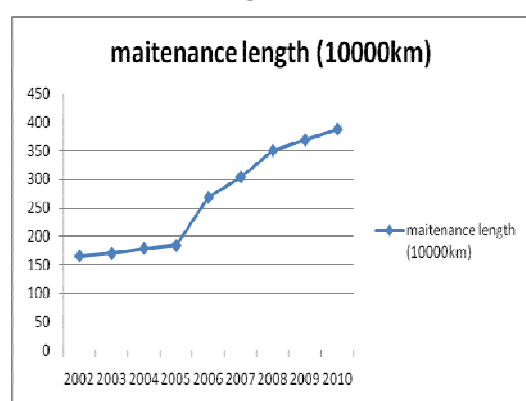
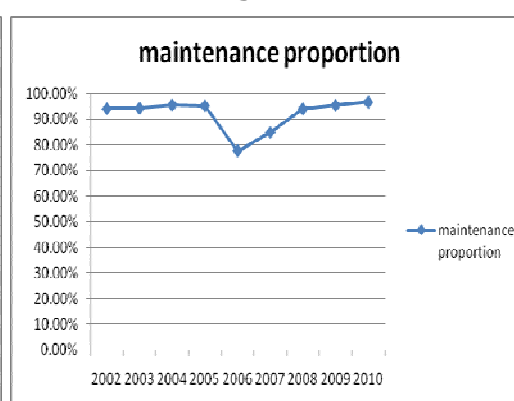


Figure 4.



Source: Statistical bulletin of highway and waterway transport development, 2002-2010.

In China, there are three types of rural road maintenance: routine, medium and heavy maintenance. Routine maintenance is the frequent repair and maintenance of the slight damage of a road and the facilities alongside. Medium or recurrent maintenance is the regular repair of the general damage of roads and the facilities along the road in order to restore them to their original condition. Heavy maintenance is the periodic repair of heavy damage to roads and the facilities along the roads in order to restore the road to its original condition.³

The system of rural road maintenance in China experienced three distinct periods prior to 2005. The first period was from 1949 to 1978 when rural migrant workers and urban workers were used for road maintenance under the model called "unified leadership and classified management". The second period was from 1979 to 1997, when road maintenance squads were set up and temporary workers were hired under professional implementers for rural road maintenance. In this period, maintenance quality and cost management issues were stressed. This was also the period when marketization in road maintenance was introduced. The third period was from 1998 to 2004 when separation of management and maintenance as well as institutions and enterprises were advocated.⁴

In 2005, China published the Plan of Reform of Management and Maintenance System for Rural Road, which marked a new era of rural road

³ China's Ministry of Communications, Management Method of Road Maintenance Engineering, 2001

⁴ Chen Li, Zheng Bo Tao, Yu Jian, Exploration of Rural Road Maintenance Organization Management, Communication Standardization, 2008

maintenance. This plan, together with the Interim Management Methods of Rural Road Maintenance (2008) and Technical Regulations of Road Maintenance (2010) regulate the liable subjects and the technical criteria and subsidy distribution of rural road maintenance.

I. RURAL ROAD MAINTENANCE IN CHINA SINCE 2005⁵

A. Institutional and regulatory framework at the central level

The Plan of Reform of Management and Maintenance System for Rural Roads was issued by the Ministry of Communications, the National Development and Reform Commission and the Ministry of Finance. It clarifies that the goal of system reform is to establish a stable flow of finance for rural road maintenance based mainly on government investment, as well as to accelerate the marketization of rural road maintenance.⁶ Specifically, the Plan redistributes the responsibilities of institutions at different administrative levels, directs towards establishing a funding system and stresses the separation between management and the implementation of maintenance.

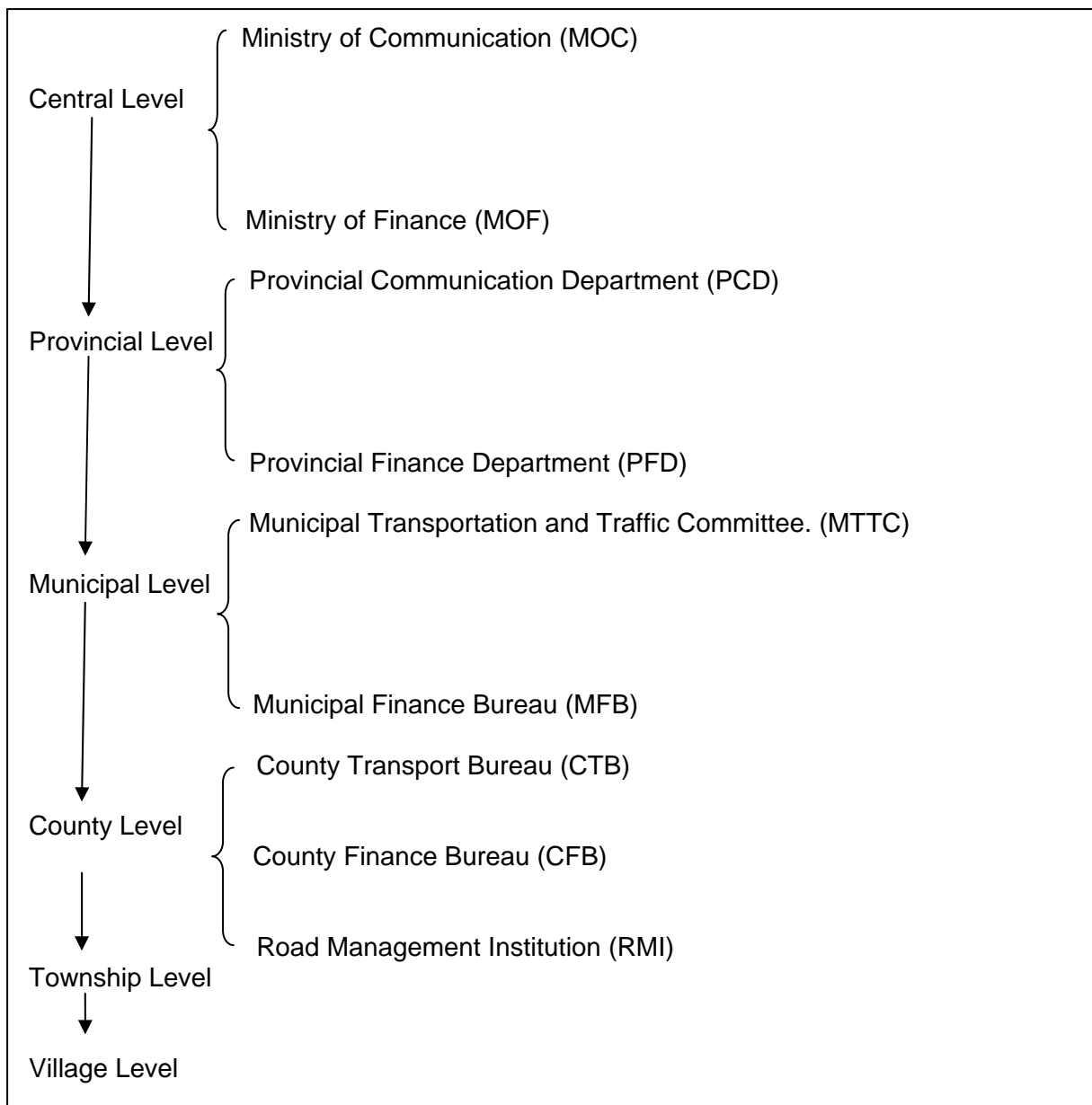
Responsibilities of institutions

Government institutions at different levels are responsible for managing and financing rural road maintenance. Among them, county government institutions take direct responsibilities of rural road maintenance. Provincial institutions are more responsible for financing, rather than managing, the implementation of rural road maintenance.

⁵ The figure and table in this section are made based on China's General Office of the State Council, The Plan of Reform of Management and Maintenance System for Rural Road, 2005; and China's Ministry of Communications, Interim Management Methods of Rural Road Maintenance, 2008

⁶ China's General Office of the State Council, The Plan of Reform of Management and Maintenance System for Rural Road, 2005

Figure 5. Hierarchy of Government Institutions in China regarding Rural Road Maintenance



The distribution of responsibilities is outlined below:

1. Central government institutions

Central government institutions are the highest administrative institutions related to rural road maintenance.

- The Ministry of Communication (MOC) is responsible for making the country-wide maintenance plan.
- The Ministry of Finance (MOF) provides funding resources by appropriating certain amounts of money to rural road maintenance.

2. Provincial government institutions

The provincial government is mainly responsible for raising funds for rural road maintenance, monitoring maintenance work and making detailed regulations for the responsibilities of the lower level governments to perform rural road maintenance.

- The Provincial Communication Department (PCD) is responsible for making the rural road construction plan, assigning rural road maintenance, monitoring and checking the process and quality of maintenance, arranging and monitoring the maintenance funds, allocating road tolls collected by the PCD to rural road maintenance, and directing and monitoring rural road management
- The Provincial Finance Department (PFD) is responsible for providing provincial subsidies to rural road maintenance from the provincial revenue.

3. Municipal government institutions

Municipal institutions function to make policies, monitor, and finance rural road maintenance and as a layer between the provincial and county governments.

- The Municipal Transportation and Traffic Committee (MTTC) is responsible for creating related regulations and administrative arrangements for the county-level government institutions, as well as funding the maintenance work from the collected road tolls.
- The Municipal Finance Bureau (MFB) is responsible for funding rural road maintenance from the revenues of the city.

4. County government institutions

County governments are the directly responsible bodies for rural road maintenance in the counties.

- The County Transport Bureau (CTB) is responsible for managing maintenance. They are responsible for implementing the rural road construction plans, making plans for rural road maintenance, raising and managing the rural road maintenance funds, monitoring the work of road management institutions, checking maintenance quality, and coordinating with township governments in protecting rural roads and facilities.
- The County Finance Bureau (CFB) is responsible for funding rural road maintenance using county revenue.
- The Road Management Institution (RMI) is a unit within the CFB. It is responsible for the daily management and maintenance work of rural roads, preparing road maintenance suggestions and implementing the maintenance according to the permitted plan, organizing bidding and contracting work, inspecting and accepting maintenance quality, and protecting road property and right of way. (If

there are no road management institutions under a county transport bureau, the work can be left to institutions directly under provincial or municipal road management institution rather than creating a new institution)

Table 1 provides a summary of the main responsibilities of institutions at different levels of Government

Table 1. Responsibility at different levels of government

	Plan	Fund	Implement	Monitor	Check
MOC	✓				
MOF		✓			
PCD	✓	✓		✓	✓
PFD		✓			
MTTC	✓	✓		✓	✓
MFB		✓			
CTD	✓	✓	✓	✓	✓
CFD		✓			
RMI			✓		✓

B. Financing system

To ensure a stable fund flow for rural road maintenance, there were two main financing channels before 2009: road tolls and government revenue. It was regulated that road tolls (including vehicle road tolls, tractor road tolls, and motorcycle road tolls) were to be mainly used for road maintenance. After deducting the cost of toll collection and traffic policing, no less than 80 per cent of the tolls collected would be used for road maintenance. The road tolls collected by local governments must be used for road maintenance, which was a priority over road construction. The provincial transport departments were responsible for distributing vehicle tolls to rural road maintenance. The municipal and county transport departments were required to allocate all the tractor and motorcycle tolls to rural road maintenance.

The direct funding from government revenue was arranged by governments at different levels. With the exception of funds from municipal and county revenue and collected tractor and motorcycle tolls, all the other funds were managed by provincial governments and were appropriated to county government institutions.

However, in 2009, the central government abolished road tolling on government funded roads and a fuel tax was introduced. The government finance departments also collect fuel tax. The gasoline consumption tax has been increased from 0.2 RMB/litre to 1 RMB/litre and the diesel consumption tax has been increased from 0.1 RMB/litre to 0.8 RMB/litre. The increase in taxes is levied within the original price, which means that even though the tax rate was increased, the pump price of the fuel did not increase. As this policy has been effective for only one year so far, it hasn't significantly affected rural road maintenance. The financial system in this article, as discussed, relates to fund arrangements prior to 2009.

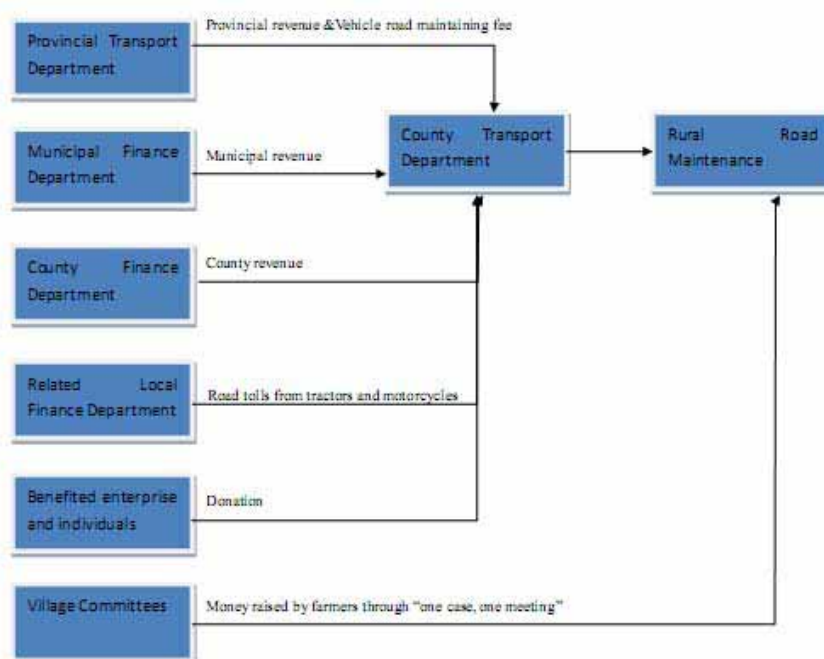
Funding for rural road maintenance comes from six different sources:

- a) Local government revenues, which cover provincial, municipal and county-level revenues and are usually used for routine maintenance.
- b) Central government revenue, which provides funds for rural road maintenance, particularly for poorer regions.
- c) Road tolls from tractors and motorbikes, a part of which are used for

- rural road maintenance.
- d) Vehicle road tolls of provincial transport division, which are used for medium and heavy maintenance work and reconstruction projects. The funding criteria is no less than 7000 RMB/km per year for county roads, 3500 RMB/km per year for township roads, 1000 RMB/km per year for village roads.
 - e) Donations from benefited enterprises and individuals
 - f) Money raised by farmers through “one case, one meeting”⁷

The total funds available for rural road maintenance are appropriated to different organizations and individuals. Figure 6 illustrates how the funds are disbursed from those agencies to rural road maintenance. Subsidies are appropriated from six agencies which include governmental departments, enterprises and individuals. With the exception of money from village committees, which goes directly to rural road maintenance, funds from other sources are sent to the county transport department first, which funds rural road maintenance according to its plan.

Figure 6. Fund Appropriation



C. Separation of management and implementation of rural road maintenance

The separation of management and implementation of rural road maintenance is aimed at enhancing the efficiency and transparency of using maintenance subsidies as well as advancing the quality of maintenance. Two steps are followed to achieve this goal. First is the progressive elimination of maintenance units in the transport department and its road management institutions. In this sense, the staff who implement maintenance projects and related capital are reorganized to form road maintenance companies. The maintenance companies bid for the right of maintaining roads. Those road maintenance companies assume sole responsibility

⁷ “One case, One meeting” is a way for villagers to decide public affairs in a democratic way.

for its profits and loss, sign contracts with its staff and manage labour according to the enterprise employment system. The main responsibility of road management institutions is the monitoring of the maintenance market as well as keeping order in the market.

The second step is to open the maintenance market to all interested parties through a bidding process. This will aid in the selection of the best maintenance implementers. Well-qualified companies are encouraged to compete in road maintenance projects transregionally. The engineering fee is determined by road management institutions, and is based on the maintenance quota and the nature of the work.

However, rural roads with low class and in special geographical conditions are usually hard to maintain through this process. In such cases, the work of construction, reconstruction and maintenance can be integrated into the same bidding process. The maintenance work itself can also be contracted to local farmers.

II. INITIATIVES AT LOCAL LEVEL

After the 2005 Plan was sent out to the local governments, they took actions to promote rural road maintenance reform in their areas. For instance, they issued plans for reforming maintenance systems, broadened the subsidy channels, held bidding events, and established contracting mechanisms. Since China is a very big country with 31 provinces and thousands of counties, this article tries to offer one case for each main action of local governments.

A. Institutional and financial arrangements at provincial level⁸

Provincial governmental institutions set up regulatory frameworks for maintenance activities. Those frameworks illustrate the detailed responsibilities of lower-level governments for rural road maintenance, the direction of financing and implementation arrangements. This section of the article uses the Fujian province as an example, to illustrate how provincial governments arrange institutional responsibilities.

The basic policy of the Fujian transport department for rural road maintenance indicates that county road maintenance is managed by county government institutions, township road maintenance is managed by township government institutions, and village road maintenance is managed by village government institutions. The details are shown in Table 2.

⁸ Figure in this section is based on the Fujian Government, Management Method of Rural Road in Fujian, 2008; Fujian Transport Department, Notice of Provincial Subsidy of Rural Road Maintenance from Fujian Transport Department, 2009; Fujian Government General Office, Opinions About Further Develop Rural Road Maintenance Work, 2009; Fujian Transport Department, Report of Modifying the Road Tolls Rate, and Other Items, 1985

Table 2. Institutional arrangements in Fujian province

	Road to maintain	Responsibilities
County government institutions	County road	<ul style="list-style-type: none"> • Subject of liabilities of the rural road maintenance • Raise and manage funds for rural road maintenance • Set up a rural road management institution in county transport division • Maintain county roads and guide the maintenance of township and village roads • Responsible for administration of county and township roads
Township government institutions	Township road	<ul style="list-style-type: none"> • Maintain township roads • Guide and supervise village road maintenance • Appoint one responsible person, with some assistants, to routine management, which includes creating plans and organizing the implementation of road maintenance within the town • Assist county transport division with road administration
Village government institutions	Village road	<ul style="list-style-type: none"> • Maintain village roads • Appoint one person from Two Village Councils or “Six Person”⁹ to administer road maintenance • This responsible person must create systems to, organize maintenance, check road conditions, report road damage, prevent village road damage, and protect road properties. • The person should be given certain allowance depending on performance.

⁹ “Six Person” is the village organization where the members are responsible for making decisions regarding village public affairs.

Table 3. Utilization of funds

	Subsidy use	Subsidy supervision
Routine Maintenance	<ul style="list-style-type: none"> Provincial subsidy is given out quarterly by provincial transport division County transport divisions arrange the use of the subsidy Municipal transport division monitors the use of subsidy 	<ul style="list-style-type: none"> Set special account only for rural road maintenance Surplus of the subsidy should be used for the following year. Publish allocation and use of subsidy on the transport division website
Medium & Heavy Maintenance (LM)	<ul style="list-style-type: none"> Deducting funds for routine maintenance, the rest of the provincial subsidy is for medium and heavy maintenance Half of the medium and heavy maintenance subsidy is managed by municipal institutions The other half is managed by provincial institutions. It is mainly used for large-size special maintenance projects 	

Road Tolls Rates of Fujian Province

The toll rate in Fujian as follow:

- Vehicles of all types are charged 115 RMB/ton/month according to their capacity.
- A tractor with a steering wheel is charged 10 RMB/month if its power is no more than 10 horse power (1 horse power = 0.735kw). a tractor with a steering wheel is charged 20 RMB/month, if its power is between 10 horse power and 20 horse power; a tractor with a steering wheel is charged 30 RMB/ month, if its power is between 20 horse power and 30 horse power; a tractor with a steering wheel is charged 40 RMB/ month, if its power is more than 30 horse power.
- Non-steering wheel type tractors of all sizes are charged 16 RMB/month.
- A motorcycle with sidecar is charged 3 RMB/month. A common motorcycle is charged 2RMB/month.

B. Raising and distributing fund at a municipal level¹⁰

Financing issues at local levels is mostly about making the subsidy criteria and the distribution of funds from different sources to different types of maintenance or to different types of roads. As for fund raising and funds appropriation, the local institutions mostly follow the rules of central institutions. This next section introduces the case of Luoyang, a city in the Henan province, and illustrates the details of financing issues at the local level.

In the city of Luoyang in Henan province, the rural road maintenance fund is composed of road maintenance fees from vehicles, tractors and motorcycles, as well

¹⁰ This section is based on the Luoyang Eleventh People's Congress Committee, Luoyang County and Township Road Maintenance and Management, 2002; Luoyang Government General Office, The Plan of Reform of Management and Maintenance System for Rural Roads in the City of Luoyang, 2007; Luoyang Government, Further Strengthen the Management Method of Village Roads, 2006

as the revenue of governments at different levels. The funding instructions are clarified in the Maintenance Plan of Luoyang.

- Funds from municipal revenue are mainly used for medium and heavy maintenance, repairing of bridges and providing subsidy for the urgent repair of flood damaged roads.
- Funds from county and township revenues are primarily used for routine maintenance and flood control projects, and can also be used for medium and heavy maintenance.
- The minimum subsidy criteria for implementing routine maintenance is 4,100 RMB/km/year for county roads, 2,740 RMB/km/year for township roads, and 2,030 RMB/km/year for village roads.
- The routine maintenance funds for county roads should be raised mainly by county governments, but also can be raised by township governments. The routine maintenance fund for township roads should be raised mainly by township governments, but also can be raised by the county governments. The routine maintenance fund for village roads should be raised mainly by township governments, but also can be raised by county governments and village committees.
- The project for medium and heavy maintenance of rural roads should be considered into the revenue management.

Table 4. Criteria for fund distribution by source of funding

	County Roads	Township Roads	Village Roads
Municipal revenue	Min 1000 RMB/km/year	Min 1000 RMB/km/year	Min 1000 RMB/km/year
County revenue	Min 4000 RMB/km/year	Min 2000 RMB/km/year	Min 1000 RMB/km/year
Township revenue		Min 1000 RMB/km/year	Min 1000 RMB/km/year

Finance instructions for county and township road maintenance

- The maintenance funds in the budget of municipal governments should be used to maintain county and township roads. No less than 60 per cent of the funds should be used for maintenance.
- The total of maintenance funds received from central and provincial governments should be used to maintain county and township roads.
- The highway emergency fund from all kinds of revenues should be used for urgent repair and maintenance projects.
- More than one per cent of the county government budget should be used for medium maintenance, heavy maintenance, reconstruction, and emergency repair of county and township roads.
- Funds from other sources for county and township road maintenance should be used for maintenance projects.

Finance instructions for village road maintenance

- Municipal, county and township governments should take out 0.5 per cent, 1 per cent and 3 per cent of their annual revenues, respectively, for funding of rural road maintenance. More than 30 per cent of the funds should be invested into village road maintenance.
- More than ten per cent of road tolls from tractors and motorbikes should be used to maintain village roads.

- The money raised by “one case, one meeting”¹¹ should be permitted, by the concerned officials and village congress, for village road maintenance.
- Donations from benefited enterprises and other social organizations are used for village road maintenance.
- Awards from municipal, county transport divisions or the county/township highway management institutions can be transferred as a subsidy for village road maintenance.
- Other funds from governments and transport divisions at different levels are used for village road maintenance.

C. Bidding procedure of rural road maintenance projects at the county level¹²

The bidding procedure is very important to the marketization of rural road maintenance. For rural roads, the bidding is managed by county government institutions. The following section of the article describes the case of Jia county, in Shaanxi province. According to the Bidding Regulations of Rural Road Maintenance in Jia County, the CTB is responsible for directing and monitoring the bidding of rural road maintenance within the county. The procedure of bidding includes inviting bids, bidding, and evaluating bidding.

Inviting Bids

The maintenance projects for bidding should satisfy the following criteria:

- The projects for bid should be for routine, medium or heavy maintenance which is included in the annual maintenance plan.
- The funds for the maintenance projects have been secured.
- The related documents and plan of maintenance have been prepared.
- The bidding documents have been prepared.
- Other preparations have been completed.

The base bid price of maintenance projects should satisfy the following criteria:

- The smallest length for routine maintenance should be more than a continuous length of 1kilometre.
- The shortest contract duration for routine maintenance is one year.
- The investment for heavy maintenance projects should be more than 30,000 RMB.

Bidding principles of rural road maintenance

- The bidding process of routine maintenance is supposed to be held nearby the road. The bids for maintaining county roads should be held in the towns and villages alongside the road. The bidding of township roads should be held in nearby villages. Bidding for village roads should occur within the village.
- The medium and heavy maintenance of all rural roads should call for bids from all enterprises that have the professional qualifications for road maintenance.

¹¹ It refers to an agreed contribution by villagers at a meeting. “One case, One meeting” is a way of asking farmers to contribute labour or money for their common collective efforts such as rural road maintenance or some other public purpose. The meeting is held by the village committee to make a plan for the money and labour contribution from farmers through a democratic voting process. The plan needs to be examined by the township government and county government. After permitted by them, the plan can be implemented.

¹² The section is based on Jia County General Office, Interim Regulations of Bidding for Rural Road Maintenance Project, 2008

- Urgent rural road maintenance projects can be directly assigned to any specific maintenance company.

Each project can only have one bidding base. The base number for routine maintenance bidding can be published. Tenderers can bid based on the base number. Non-base bidding is also permitted. However, the base numbers for medium and heavy maintenance biddings must be kept secret.

Bidding system

- To verify the qualification of bidders for routine maintenance, it is stressed to check the bidder's name, place of birth, current residence, health status, technical ability, credit, and crime record.
To verify the qualification of bidding units for medium and heavy maintenance, it is stressed to check the name of the company, proof of maintenance qualification, composition of staff, facilities, achievement, number of staff who are supposed to manage the project, technical staff, and availability of equipment.
- For routine maintenance, the bidders should submit a plan of project implementation including the schedule, the method, techniques, security plan, quality goals and the tendered sum.
- For medium and heavy maintenance, the submitted documents should include the form of tender and its attachments, the list of priced work and amount, the form of tender sum, and the plan of maintenance work.
- For routine maintenance, the period between the publishing of bidding documents to opening bidding is no longer than 7 days. For other maintenance projects, the period between the selling and the handing in of bidding documents is no less than 20 days.

Bid Evaluation

- The evaluation of bids is organized by the CTB, related transport departments and representatives from the subdivisions, as well as by experts who are disinterested third parties to the bidders. The evaluation team should be composed of more than five persons, half of whom should be experts.
- The principles of evaluating bids:
 - Bids should have reasonable quote prices, feasible plans of implementation, advanced technology, good achievement and credit for past work.
 - The lowest price should not be the only condition for winning a bid.
 - If the bidders offer similar conditions, routine maintenance bids should be awarded to bidders of low income.
- The evaluation can be based on grading, voting and other ways. In cases of routine maintenance, the winning bid is announced on the day of opening the bids. For medium and heavy maintenance projects, announcing the winning bidder can also be on the same day of that the bid was open. However, in some special situations, the decision can be made as much as a week later, if necessary.
- The bid winners should sign the contract within three days of winning the bid.

D. Contract models of rural road maintenance¹³

There are four contracting models for rural road maintenance. The contractors can be individuals, companies, road maintenance teams and benefited enterprises.

- **Individual or family contracting model**
In this model, the rural road maintenance task is distributed to the farmers or to families alongside the road. The individuals or families sign a contract with the local government road institution and are paid for maintaining a certain length of the road. For example, in Zhuangbian town, Fujian province, the maintenance workers are recommended by the villages alongside the road and employed by the township transport institution. Each worker is responsible for four to five kilometres of road. Their work is evaluated by the town transport institutions and their villages. The result of the evaluation affects their payment. In the town of Luanfeng, Fujian province, the individual contractor for rural road maintenance is selected by the village committee. In Jiangshan town, Fujian province, some outlying villages adopt family contracting models of rural road maintenance, because of the short length of the road and their geographical condition.
- **Company contracting model**
In this model, some counties, towns or villages assign the entire rural road maintenance work to the professional maintenance companies, which can be selected through bidding or authorized directly by the government transport institutions. For instance, Yongding county in Fujian province gave the entire maintenance task of 267 kilometres of county road to the Baolai Construction and Engineering Company of Yongding county. Similarly, in Xinxian town, the entire maintenance work was assigned to the township maintenance company. The company is paid according to the quality of their maintenance.
- **Road maintenance team contracting model**
The road maintenance team contracting model ensures that the local governmental road institutions contract road maintenance work to local maintenance teams. For example, in Nanfeng county, Jiangxi province, the CRB selected maintenance team leaders through competition. Afterwards, the team leader will choose maintenance workers within the road bureau of Nanfeng county. The maintenance team leader is the person responsible for the team and is under the management of the maintenance company of the CRB. The maintenance company assigns tasks to each maintenance team every month and monitors the maintenance process.
- **Benefited enterprises contracting model**
The benefited enterprises contracting model states that when certain sections of a road are mainly used to serve a particular enterprise, that enterprise can assume the road's maintenance. For example, in Baisha town, Fujian province, a section of road called Lv Feng mainly provides access to Jinlong Energy Enterprise. By negotiating between the local road bureau and Jinlong, the Lv Feng road maintenance was awarded to the enterprise.

¹³

This section is based on the information on <http://www.moc.gov.cn/06road/>

E. Emergent maintenance of rural roads maintenance¹⁴

In the Technical Regulations of Road Maintenance¹⁵, the general regulation for emergent road maintenance advocates policy of prevention, integrating prevention with control. Specifically, the ability to protect roads from disasters such as floods, snow, and sand, should be checked regularly depending on the local geographical and weather conditions. For roads that are frequently affected by flood water, snow, and sand storms, reserving the materials and machines for repairing these roads must be done in advance. Once the disaster takes place, the road should first be dredged, and then repaired in a timely manner. Related government institutions should establish an emergency response plan for road disaster prevention. The plan should include mobilizing the system, the rescue team, a guarantee of rescue staff, materials and money, a system for information reporting, a temporary transportation plan, and rescue measurements.

Apart from a general emergency response plan for rural road maintenance, there is another way to make emergent maintenance more practical and effective. This is to insure road maintenance through the commercial insurance system.

Shanghang county is located in Fujian Province in the southwest and has 1519.6 kilometres of rural roads (county roads of 349.5 kilometres and 617.7 kilometres, a village road of 523.3 kilometres, and a 29.1 kilometre private road). During the rainy season, landslides by mountains and hills create damage to the rural roads. The county thus needs to invest a substantial amount of money every year to repair and maintain them.

Rural road damage due to natural disasters in Shanghang County was brought under an insurance coverage system in 2010. The entire 1519.6 km of rural roads within the county were insured with the Shanghang branch of China Life Property Insurance Company with a total claim of 1.764 billion RMB. Insurance claims can include the costs of repairing the roadbed, bridges, tunnels and culverts, protection works, removal of landslide earth and debris, project losses etc. The annual insurance premium of 605,900 RMB is paid by the county government. When a road is damaged, the insurer can choose to either pay for the loss and the cost of the damage, or repair the damage. The compensation for each incident is no more than 0.3 million RMB. If the cost and loss are less than 10,000 RMB, the insurer does not have to pay.

This system has three advantages for emergent maintenance. First, the road facilities damaged by disaster can be repaired in time, and losses due to major natural disasters have a financial guarantee; the second is that insurance reduces the financial burden on local governments; and thirdly, it effectively ensures the smooth flow of funds for road damage repair and meets the needs of rural road safety.

¹⁴ This part is based on Shanghang County Used Rural Road Insurance to Solve the Funding Problem of Repair Disaster Damage, 2010-08-10, accessed at www.fjgl.gov.cn/show.aspx?ID=3231&cid=10

¹⁵ China's Ministry of Communications, Technical Regulations of Road Maintenance, 2010

CONCLUSION

China has established a clear rural road maintenance institutional framework to guide and regulate governments at different administrative levels. The government departments follow this framework and are monitored by higher-level authorities. Among all the institutions, county level government institutions take most of the responsibility for rural road maintenance. China has also set up a diverse set of financial resources for rural road maintenance, with main contributions coming from budgetary allocations of higher-level governments at the national and provincial levels. In addition, the bidding and contracting system of rural road maintenance guarantees the implementation and quality of maintenance work. The institutional arrangements and experience of China can be of assistance to other countries in considering a rural road maintenance system of their own.

REFERENCES

- Chen Li, Zheng Bo Tao, Yu Jian (2008). Exploration of Rural Road Maintenance Organization Management, *Communication Standardization*.
- China's General Office of the State Council (2005). The Plan of Reform of Management and Maintenance System for Rural Road.
- China's Ministry of Communications (2008). Interim Management Methods of Rural Road Maintenance
- China's Ministry of Communications (2010). Technical Regulations of Road Maintenance.
- China's General Office of the State Council (2007). Management Method of Raising Money and Labor by "One Case, One Meeting" in the Village.
- China's Ministry of Communications (2011). Statistical bulletin of highway and waterway transport development, 2002-2010.
- China's Ministry of Communications (2011). Management Method of Road Maintenance Engineering.
- Fujian Government (2008). Management Method of Rural Road in Fujian.
- Fujian Transport Department (1985). Report of Modifying the Road Tolls Rate, and Other Items.
- Fujian Transport Department (2009). Notice of Provincial Subsidy of Rural Road Maintenance from Fujian Transport Department.
- Fujian Government General Office (2009). Opinions About Further Develop Rural Road Maintenance Work.
- Jia County General Office (2008). Interim Regulations of Bidding for Rural Road Maintenance Project.
- Luoyang Eleventh People's Congress Committee (2002). Luoyang County and Township Road Maintenance and Management.

Luoyang Government General Office (2007). The Plan of Reform of Management and Maintenance System for Rural Road in the City of Luoyang.

Luoyang Government (2006). Further Strengthen the Management Method of Village Road.

Rural Road Website, available at <<http://www.moc.gov.cn/06road/>>.

Shanghang County Used Rural Road Insurance to Solve the Funding Problem of Repair Disaster Damage, 2010-08-10,
available at <<http://www.fjgl.gov.cn/show.aspx?ID=3231&cid=10>>.