

# 19

---

## RURAL DEVELOPMENT

---

Whatever the Government's development strategies over the next 20 years, the majority of the people in the Western Region will still live in rural areas. Poverty will remain largely a rural phenomenon, albeit less so than now. Therefore, local governments will want to vigorously pursue rural development. This chapter examines the relative priorities for rural development in the Western Region.

## Rural infrastructure

Improvements in rural infrastructure have greatly contributed to the economic growth of the Western Region and to poverty alleviation. The policy issue now is the extent to which there is room for further productive investment in the various rural infrastructure sectors.

### TELEPHONES

Access to telephones is much less common in the Western Region than in the rest of rural PRC. Only 9.2 percent of rural households in the southwest have telephones, and only 13.5 percent in the northwest, compared with 44.6 percent in the Eastern Region. Only 19.2 percent of Western Region villages have telephones (Table 19-1).

Telephone service is the infrastructure item most likely to be absent in a poverty village, after tap water. With the ICT revolution, telephone access is becoming more important. There is a risk of a “digital divide” between those who have access to the potential benefits of ICT and knowledge and those who do not.

The poverty alleviation programs make no special provision for the use of information technology to overcome the problems of isolation, poor education, and lack of timely information.

### POST OFFICES

Many villages in the Western Region lack a post office (Table 19-1). Part of the importance of a post office lies in the financial services that post offices provide in the PRC.

### TELEVISION

Even the most remote village, with terrible access roads, can be instantaneously linked to the contemporary world through satellite television. It is likely that nearly all the 88.9 percent of villages in the Western Region with electricity also have TV. Under a project funded by the Central TV and Broadcasting Bureau in Beijing, all 157 administrative villages of Lancang county (Yunnan) have received a satellite dish and two TV sets. Only half of these villages are using the TVs. The other half are waiting to be linked into the electricity grid; this will probably happen by the end of 2001. The

**Table 19-1** Proportion of Villages with Infrastructure, 1999

Region	Electricity (%)	Post Office (%)	Telephones (%)	Roads (%)	Tap Water (%)	Health Units (%)
<b>PRC</b>	<b>98.1</b>	<b>92.4</b>	<b>48.8</b>	<b>89.4</b>	<b>17.8</b>	<b>89.9</b>
<b>Eastern</b>	<b>100.0</b>	<b>100.0</b>	<b>76.6</b>	<b>94.1</b>	<b>33.8</b>	
<b>Western</b>	<b>88.9</b>	<b>75.1</b>	<b>19.2</b>	<b>79.3</b>	<b>9.1</b>	
Guangxi	91.9	94.5	27.4	86.3	8.0	98.0
Chongqing	100.0	100.0	12.1	74.5	9.9	87.0
Sichuan	95.6	70.6	15.0	82.2	7.1	85.1
Guizhou	79.5	31.8	6.1	70.3	9.6	81.1
Yunnan	79.8	84.4	81.9	76.0	16.6	98.7
Tibet	18.0	15.2	1.4	73.9	2.0	51.6
Shaanxi	95.0	91.9	14.3	84.7	8.2	88.6
Gansu	87.6	87.5	9.0	82.3	7.9	90.4
Qinghai	77.2	51.8	4.7	77.9	15.7	86.2
Ningxia	95.3	80.6	15.9	82.0	10.8	90.8
Xinjiang	80.0	72.8	26.5	83.5	15.6	85.1
Inner Mongolia	97.1	86.5	6.8	71.0	8.0	94.1

Source: Calculated from *Western China Rural Statistics 2000*, *China Civil Affairs Statistical Yearbook 2001*, and *China Social Statistics 2000*.

Note: These figures may understate the provision of infrastructure in that it is probable that the average size of villages lacking infrastructure is smaller than that of villages with infrastructure. Overall, the average village population is about 980 in the northwest and about 1,280 in the southwest.

### Box 19-1 A Lahu Minority Village in Lancang County, Southern Yunnan

After travelling for two hours via very rough roads in a modern Japanese jeep we arrived at the village. By tractor the journey from Lancang town would have taken 15 hours and by walking 5 days. The area was mountainous and the road difficult. On reaching the top of the last hill, the first sight was a very bright, white satellite dish amongst the thatched roofs of the village huts.

What difference had the arrival of TV and electricity made to this isolated village? The vast informational gap that normally separates the poor and isolated from the mainstream of society had collapsed over night. Every evening, the entire village of 200 decamped to the Village Committee room to watch the 7 pm news. The most talked about news topic during the last month had been the US spy plane. The schoolteachers thought that the Chinese government had been too lenient in its handling of the event. The animated conversation that followed could



have taken place in any urban living room in any part of the world. The teachers also pointed out the big difference that the arrival of electricity and television had made to the students. For years, science had been taught but the children had difficulty understanding what electricity was. Now it was easier to deal with this problem. The school included boarding facilities for grade 6 students who lived too far away to commute daily. Each bedroom now had a light bulb, allowing students to study after dark.

The teachers were very keen to further their studies and one of them was about to be examined in four subjects over the weekend. He had purchased the necessary textbooks at the local town a year ago and was now ready for the test. When we explained that it was now possible to study and undertake exams using computers and the Internet, he had no trouble in understanding the concept and appreciating what a difference this kind of technology could make.

Source: Field visit by team members, April 2001.—Photo Dr. M. Vicziany

impact of TV on people's lives is substantial and almost immediate (Box 19-1).

In Yunnan, the 211 Project for installing satellite TV receiving stations was started in 1991. By the end of 1998, 21,553 stations had been built and radio broadcasts and TV programs reached between 81 percent and 84 percent of the population of Yunnan. With some 3,000 villages already linked up for satellite communication, the focus is increasingly shifting to scotoma villages.<sup>1</sup> Despite this, TV and radio coverage in Yunnan is much lower than in the rest of the PRC by about 5–6 percent, and, relative to the eastern seaboard, by 10 percent. About 600,000 people in remote, poor areas do not have access to modern communication.

Providing modern communications via satellite TV, radios, and mobile phones provides the poor with timely and current information. It increases choice, whether regarding the merchant to whom vegetables can be sold or regarding the town to migrate to during the next construction season.

#### ROADS

There is considerable scope for transport to play a proactive role in poverty alleviation.<sup>2</sup> Certainly inadequate transport and low access contribute to

poverty. The World Bank experience is that the provision of all-weather roads helps reduce rural poverty, especially when combined with programs for socioeconomic development. However, the World Bank admits that "relatively little is known about the impact of the Bank's transport interventions on the welfare of the poor."<sup>3</sup> While transport improvements may lead to higher incomes for some, others, including the very poor, may experience welfare and income losses. The poor may suffer from the displacement of nonmotorized vehicles, pedestrian fatalities, or the relocation of labor-intensive manufacturing.

The impact of transport improvements may be direct or indirect. Transport has a direct impact on poverty where an improvement in facilities or a change in policy leads directly to a desirable outcome, for example, where the construction of an all-weather local road leads to an expansion of employment opportunities in local industry. Transport improvements have an indirect impact when investment in a new facility causes a chain reaction that creates upstream or downstream employment benefits. For example, port privatization and trade facilitation may lower container movement costs, thereby increasing the competitiveness of the agricultural processing industries and cash crop sales

to the industries by poor farmers. While the indirect effects of transport improvements may be very important, it is difficult to forecast their scale.

The direct effects of transport improvements on poverty appear to be greatest in rural areas. Targeting can be effective because the rural poor are a relatively homogeneous group in terms of transport needs. Since access to markets and to health and social services is essential to daily life, the provision of basic, all-weather access roads and the improvement of transport services contribute directly to rural poverty alleviation.

Yunnan province is arguably one of the worst affected by isolation and weather. It is also the poorest province by most standard measures. An estimated 70 percent of Yunnan's villages are in remote areas, and only 76 percent of villages have road access. Villages in Yunnan that are served by roads may still be relatively inaccessible because of remoteness, the condition of the road, or the lack of suitable vehicles.<sup>4</sup>

The lack of such roads is a major factor in the poverty of the Western Region for the following reasons:

- The absence of an all-weather road separates the village from local markets and this in turn acts as an enormous constraint on the relevance of microcredit: without access to diversified markets, there is no point in taking out a loan.
- When people and animals fall ill or have an accident or women have difficult pregnancies, the lack of an all-weather road makes it impossible to seek timely help from the local town where the bulk of the medical and veterinary services are based. All-weather roads make it possible to rationalize the use of these scarce medical services, given that there are insufficient funds to build an extensive medical infrastructure that reaches the villages.
- Roads bring essential imports into the village all year round with immediate benefit to the peasants who can now buy, for example, coal as they need it rather than only from local

merchants in winter when the village is cut off from the town. In Guangxi and Guizhou an average family of four needs about 3,000 kg of coal per year. A strong man can carry only 50 kg at a time along an all-weather road. Moreover, poor households that lack cash flow prefer to buy essential commodities in small quantities to avoid borrowing money and paying interest. But the lack of an all-weather road pushes peasant into the hands of the village middleman who has the resources to warehouse coal locally.<sup>5</sup>

The road standard should match the traffic. At present, roads in the Western Region seem to be either highways or roads that are so primitive as to be almost impassable or dangerous. More often, something in between is needed. Common sense is also needed—the foregoing account is not intended to provide a justification for a road construction mania that infringes on delicate ecological areas or forests.

New information automatically calls for all-weather roads so that the physical connections between remote villages and the towns can be established. And the movement of people, goods, animals, and services along all-weather roads needs to be assured through programs that deliver good health to the peasants and their animals. As a recent review by the ADB argues:<sup>6</sup>

...many of the expected gains from electrification have failed to materialize. In particular, the notion that electricity alone can push ahead development and growth in the absence of other factors and forms of infrastructure has been discredited.

What this does not, however, show is that in provinces such as Yunnan that are subjected to heavy rainfall, these roads are accessible only during the dry season and virtually unusable during the wet season.

### **RURAL WATER SUPPLY AND SANITATION**

At the end of 1999, only 9.1 percent of villages in the Western Region had access to tap water. One study of Guangxi and Guizhou<sup>7</sup> reports that the trip to collect

drinking water for humans and animals typically ranges from a 20-minute to an hour's walk from villages and that water is collected between two and four times a day. On average, a family of four to five people, with one ox and two pigs, uses a minimum of 150 kg of water per day. Each family spends on average two hours every day fetching water—in a village of 200 households, that means a total of 400 hours each day are spent fetching water. The economic and social cost of this is self-evident:

- Water shortages constrain animal husbandry and the cultivation of fruit trees and vegetables. Given the difficulty of fetching water for human consumption, some families are reluctant to expand the number of their farm animals and trees.
- Water shortages give rise to disease and death. Medical science has established that the greater the quantity of water, the greater the dilution of pollutants and microbes in the water supply and, hence, the lower the risk of serious illness or death. Water-borne diseases, particularly diarrhea and typhoid, are a major problem in the Western Region. Women and children are the main victims (Chapter 12).
- Water shortages give rise to fights between neighboring villages over water supplies, an issue that calls for intervillage cooperation.

Most of the above problems are soluble. However, what cannot be solved is the absolute shortage of water during droughts. A three-year drought in northern Gansu has virtually wiped out the benefits of the previous poverty alleviation programs. The impact has been so severe that farmers have withdrawn their children from schools because they cannot afford the slightest extra expenditure.<sup>8</sup>

### VILLAGE HEALTH FACILITIES

About 87.5 percent of villages in the Western Region have health units. There is considerable variation from province to province. The average number of health workers per village in the PRC is 1.82, and the number of villages with doctors appears to exceed

the number with clinics (although exact figures are not available). However, these statistics hide the difficulties of access to health services and the inequities between urban and rural areas that Chapter 5 discusses.

### ELECTRICITY

At the end of 1999, about 11 percent of villages in the Western Region lacked electricity.

Elsewhere peasants have reported the other obvious benefits of electricity: the ability to employ labor-saving devices such as mills for grinding rice, to work late in the fields knowing that they can feed animals at the homestead after dark, to sew at night, and to go out at night in the village without fear because of lighting.<sup>9</sup> Most important of all, electricity made it possible to receive radio and TV transmissions.

The problem of supplying western PRC with rural energy can be partially alleviated by broadening the definition of electricity to include alternative sources of energy, in particular a combination of methane gas through the anaerobic combustion of human, animal, and vegetable wastes and solar energy. From discussions with government officials during the Lanzhou workshop, however, it is clear that there has been considerable bureaucratic resistance to alternative energy models. Given the cost of electricity generated by the burning of coal or hydropower, these alternatives should be put back onto the agenda of governments in western PRC.

### Box 19-2 Rural Infrastructure in Lancang County, Yunnan

The third type of local infrastructure most frequently demanded by villagers in our discussions was energy—their word for this was “electricity.” In the Lahu village that we visited in April 2001, the headmaster of the school explained how, since a connection was established with the county electricity grid, students were able to study after dark. This was especially important for boarders in grades 5 and 6, who had come to live at the school from considerable distances and whose parents were especially poor. The cost of schooling these children was high—they all brought their own food supplies from home and cooked their own meals. So, the arrival of electricity enabled these students to study longer and harder, thereby maximizing their chances of educational success.—*Field visit by team member, April 2001*

## Food for Work programs

FFW funds are used for construction projects that employ the poor who receive food as payment, thus increasing a family's access to resources. Central funds need to be matched by provincial and county funds, but the latter have declined in recent years and been supplemented by the provision of voluntary labor. This voluntary labor system predated the FFW. Estimates suggest that about 40 percent of the labor employed in the FFW comes from this voluntary system. Given that better-off families can buy out their labor commitments, it is not surprising the poor families regard the FFW as a "labor tax" rather than a scheme to transfer resources and assistance to them. In the FFW, poor people find themselves employed "voluntarily" on construction projects without remuneration simply because they cannot buy their release from the commitments made by local governments.<sup>10</sup> So, even when the FFW correctly targets the poor, the targeting does not result in a net transfer of wealth.

On the other hand, given that 60 percent of the labor used in the FFW is not involved in this "voluntary" scheme, the employment has been beneficial to poor families. Although detailed government data on the FFW was not available for this study, the experience of countries like India suggests that the benefits that filter down to the nonpoor are less than with poverty programs involving loans. Laboring on FFW brings no prestige or status, in contrast to loans. Hence, FFW programs throughout the world do tend to attract the most needy—people who have long since set aside thoughts about status. Such considerations are counterbalanced by the opportunities for corruption and pilfering in the administration of public works and the supply of construction materials.<sup>11</sup> The extent of these problems in the Western Region is unknown.

The infrastructure built with the labor of the FFW system helps to promote local development. However, the FFW program suffers leakage as a result of funds being allocated to better-off villages rather than the poorest villages. There is also evidence to

show that when the poorest villages have been correctly selected for assistance, the funds may be spent on projects that the local people do not regard as the priority. For instance, a case has been cited where "villagers voiced a clear need and preference for more roads, but were instead told to build terraces by county officials."<sup>12</sup>

The PRC shares with India a top-down approach to rural development and poverty alleviation, despite the fact that the PRC has been a socialist country and India a country in which agricultural land has always been in the hands of private farmers who are frequently large landlords. In the Indian case, the debate is about who benefits the most from the construction of rural infrastructure—the landlord or the landless laborer. In the case of the PRC, however, the benefits of rural construction have gone disproportionately to the better-off villages. Hence inequality in the PRC has persisted at the rural level despite the absence of landlordism.<sup>13</sup> But the fundamental problem with a FFW approach to poverty alleviation is the difficulty of constructing a rational plan that identifies sufficient numbers of construction projects that not only create jobs but also make meaningful contributions to rural infrastructure.

## Microcredit

In addition to substituting small-scale, local projects for large-scale projects in better-off villages and townships, the poverty alleviation program needs a clearer focus on appropriate microcredit schemes.

### Scale of microcredit in the PRC

Microcredit in the PRC is still on an experimental basis with funds coming largely from the ABC and international donors. There have also been pilot projects by, among others, CASS.<sup>14</sup> About 266 pilot microfinance projects are operating; 90 percent of these are projects by external donor agencies. None of them has yet become financially viable, but this does not mean that they never can. Donors agree

that the constraints arise from the lack of proper legal and institutional environments.<sup>15</sup>

In contrast to the eastern provinces, the credit options available to farmers in the Western Region are much more limited. In the PRC as a whole, informal credit to farmers in 1998 was four times more important than formal credit via the ABC (Table 19-2). However, informal credit practices such as *hui* are largely a feature of eastern PRC. Although they remain illegal, they still play a critical role.

Although the international donor agencies are more involved in microcredit, from the viewpoint of making microcredit into an enduring form of rural finance, the funds currently dispensed by the ABC are likely to have a greater impact on development thinking. Comparing the operations of the ABC with the projects supported by international donor agencies is therefore important.

There have been numerous case studies of the use of credit by poor households. A recent one found that most households in poor areas have access to the formal credit market, although the amount of loans is small.<sup>16</sup> Surprisingly, poor households participate in the credit markets more than rich ones. Poor households are more likely to use loans for consumption, especially house construction

**Table 19-2 Average Borrowings per Person, by Region, 1996**

Region	From Formal Credit Institutions (yuan)	From Informal Credit Institutions (yuan)	Percentage of Formal to Informal Credit (%)
Eastern	17.79	201.39	8.8
Central	44.20	209.57	21.1
Western	61.26	106.37	57.6

Source: Asian Development Bank (2000g), Chapter A8, "PRC Rural and Microfinance Approaches and Experience," Table 2, p.2.

(25 percent), medical expenditure (15 percent), or daily expenditure (7 percent) (Table 19-3).

Improving access to credit would help households with production and consumption. However, the survey found that it would not help with the development of nonfarm activities.

#### **Inappropriateness of ABC for microcredit**

The ABC is not an appropriate vehicle for the development of microcredit because it operates along increasingly commercial lines. This evolution generates an approach and attitude quite antithetical to the intentions of microcredit. The defining characteristic of microcredit, according to the *grameen* approach envisaged by its founder Professor

**Table 19-3 Use of Loans by Rural Households in Poverty Counties**

Purpose of Loan	Richest in Assets (%)	Second Richest (%)	Third Richest (%)	Poorest (%)	All Households (%)
<b>Production</b>					
Fertilizer	4.1	9.9	12.2	10.1	8.0
Other investment	2.9	15.9	10.9	1.8	7.0
Animals	29.3	7.5	3.7	11.2	16.4
Fixed asset	5.0	13.8	12.2	0.0	7.1
Private activities	5.8	0.5	7.9	4.0	4.5
<b>Subtotal</b>	<b>47.0</b>	<b>47.6</b>	<b>47.0</b>	<b>27.0</b>	<b>43.0</b>
<b>Consumption</b>					
Daily expenditure	1.6	4.3	2.5	7.0	3.5
Marriage and death	3.8	15.2	3.8	3.5	6.4
Education of children	7.2	4.3	7.7	6.5	6.5
Visits to the doctor	4.2	1.7	4.9	14.5	5.9
<b>Subtotal</b>	<b>16.8</b>	<b>25.5</b>	<b>18.9</b>	<b>31.6</b>	<b>22.2</b>
<b>Housing</b>	<b>24.1</b>	<b>5.1</b>	<b>11.6</b>	<b>24.5</b>	<b>17.8</b>
Repayment of other loans	5.7	15.7	4.1	3.3	7.3
Others	6.4	6.1	18.5	13.6	9.7
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: Wang, Park, and Li (2001).

Note: The survey covered six poverty counties in six provinces. The percentages relate to the total value of loans.

Mohammed Yunus,<sup>17</sup> is to generate a local spirit of self-help and cooperation between households. Through this means, microcredit has a chance of becoming a self-sustaining approach to poverty alleviation rather than just another scheme of Government subsidies.

### **Need to involve local communities of farmers, minorities, and women**

NGOs, rural cooperatives, and the Women's Federation are possible intermediaries for the administration of microcredit schemes. Without suitable intermediaries, the problem of identifying the right kind of poor families will remain insoluble. For microcredit to work effectively, the poor households that receive loans need to have some capacity to change their lives. If their poverty is desperate, they will lack the capacity to repay their loans. On the other hand, if they are relatively well-to-do, they are not the intended beneficiaries.<sup>18</sup>

### **Economic problems facing current microcredit schemes**

The PRC's microcredit schemes suffer from a range of common economic problems that adversely affect loans dispensed by both ABC and donor agencies:

- Most microcredit is for farming schemes rather than husbandry, small industries, marketing, and other projects. This lack of diversification exposes the farmer to great risk in the event that drought or pests destroy crops.<sup>19</sup>
- The huge demand for microcredit is not met by the availability of loans. The loans are, moreover, too small to allow borrowers, especially small industries, to go into more ambitious projects. Typically, loans range from 200 yuan to 1,000 yuan, and the second loan is limited to an increase of 50 percent on the previous loan.
- The huge demand for microcredit is partly due to the low interest rate compared with the 1.5–2.0 percent per month charged by professional moneylenders. Increasing the interest rate would help ration scarce resources to those who have a better chance of generating sustainable incomes.
- The fixed loan and repayment periods do not match the client's cash flow. Typically the first payment is due after 30 days and every 10 days thereafter. Repaying loans every 10 days is costly, as it requires spending time traveling to the loan centers.
- The peasants are opposed to the compulsory saving implied by setting aside 5 percent of the loan principal as a risk fund against the failure of a family to meet loan repayments.

These criticisms need to be taken into account if microcredit is to become a major instrument for poverty alleviation. At the same time, the final architecture of microcredit in rural western PRC must be based on principles that ensure sustainability. Many of the current criticisms merely demonstrate that peasants still have a long way to go in the transition from the mentality of subsidies to a more self-reliant approach to improving their living standards.

#### **Box 19-3 Microcredit in Luquan County, Yunnan**

**F**rom the beginning of our conversation, it was clear that this family was not among the poorest and indeed perhaps not even poor. We sat on the veranda of a well-constructed house, outside the main living room in which the new TV was located. Adjacent to this building was another building in which the bedrooms and the kitchen were located. To the right of where we sat was a large brick kiln used to cure tobacco. This farmer had 4 *mu*, half of which he had converted to tobacco, the most profitable cash crop in Luquan County. Two years earlier, he had also received a microcredit loan with which he purchased 12 lambs. Now there were two dozen. The children were absent during our interviews; the oldest, a 12-year-old girl, attended boarding school in the nearby township. Our informant told us that he was among the 20 out of 50 poor families in the village who were selected for special assistance with microcredit. But from the time of our arrival in the village, it was clear from the substantial nature of the houses, the large number of farm animals, and the abundance of equipment that this was not a poor village. This village is an example of what happens when the poverty alleviation program is targeted at poor counties rather than poor villages or poor townships.

The family complained of wasting time walking for 20 minutes each way (sometimes more than once a day) to the local pond to collect drinking water. This particular village is located in a region where water is much more abundant than elsewhere in the Western Region.—*Field visit by team member, April 2001*

### Administrative problems facing microcredit schemes

The following administrative problems are widely reported by both donor agencies and the administrators of ABC loans:

- Proper staff training is needed to ensure that the right approaches and attitudes are adopted when loans are distributed to the poor.
- There must be a clear definition of the roles of local government to avoid duplication and overlap between provincial, county, and township staff.
- There needs to be official acceptance of the evidence that microcredit schemes are best implemented by nongovernment organizations or cooperatives.
- Finally, an appropriate legal framework is needed for a sustainable microcredit scheme, including rules and regulations for the writing off of bad debts.

Enough case studies exist to show that if microcredit is to become a major instrument for reducing poverty, then reform is necessary.<sup>20</sup> Reform could help increase the retention rate; at the moment this varies between 80 percent and 33 percent. The retention rate has been better in areas where farmers have applied their loans to diversified investments.

On the other hand, no amount of reform will make microcredit relevant to the most inaccessible areas. A precondition for even a modestly successful microcredit loan is proximity to a local market, and such proximity typically requires access to an all-weather road.<sup>21</sup>

## Assessment of priorities and implications for policies

A major study by the International Food Policy Research Institute (IFPRI)<sup>22</sup> has examined the impact of most of the various forms of government spending that this chapter is considering. The IFPRI research analyzed the impact of different forms of

government spending on agricultural growth, rural poverty, and regional inequality. The IFPRI study findings tell us what worked best in the past, and as such are a valuable starting point for considering future strategies and priorities.

### IMPACT ON AGRICULTURAL GDP

The IFPRI study found that in the Western Region R&D investment has so far produced by far the best returns in terms of impact on agricultural GDP, and education investment the next best (Table 19-4).

**Table 19-4 Returns of Public Investment to Production, per Year, 1997**

Item	Yuan per Yuan Expenditure			PRC
	Eastern Region <sup>a</sup>	Central Region <sup>b</sup>	Western Region <sup>c</sup>	
<b>Returns to total rural GDP</b>				
R&D	8.60	10.02	12.69	9.59
Irrigation	2.39	1.75	1.56	1.88
Roads	8.38	13.37	4.29	8.83
Education	9.75	7.78	5.06	8.68
Electricity	1.52	1.35	0.61	1.26
Telephone	7.12	8.54	4.13	6.98
<b>Returns to agricultural GDP</b>				
R&D	8.60	10.02	12.69	9.59
Irrigation	2.39	1.75	1.56	1.88
Roads	1.67	3.84	1.92	2.12
Education	3.53	3.66	3.28	3.71
Electricity	0.55	0.63	0.40	0.54
Telephone	1.58	2.64	1.99	1.91
<b>Returns to nonfarm GDP</b>				
Roads	6.71	9.89	2.37	6.71
Education	6.22	4.13	1.78	4.97
Electricity	0.97	0.71	0.21	0.72
Telephone	5.54	5.91	2.14	5.07

Source: Shenggen Fan, Linxiu Zhang, and Xiaobo Zhang (2001)

<sup>a</sup> Includes Guangxi.

<sup>b</sup> Includes Inner Mongolia.

<sup>c</sup> Excludes Tibet (lack of data), Guangxi, and Inner Mongolia.

Agricultural productivity per hectare, per person, and per animal, remains low in the Western Region in comparison with other regions of the PRC. Therefore, it is reasonable to suppose that agricultural R&D and extension services will continue to produce high returns in the Western Region.

The case for education investment is not so clear. During the 1980s and 1990s there were substantial improvements in education in the Western Region. Chapter 11 argued that education investment continues to be a high priority for the Western Region, but it may not produce returns as high as those in the past.

Investment in irrigation has produced lower returns in the past than investment in agricultural R&D and education. This is likely to remain the case. Any new irrigation opportunities will inevitably be less attractive than past schemes. Moreover, as Chapters 16 and 18 have pointed out, the needs of industry and domestic water supply will severely constrain the use of water for irrigation in the northwest.

Investment in roads has also had much less impact on rural GDP than investment in R&D and education. However, road investment will become more attractive as rural GDP rises and transport demand increases.

### IMPACT ON POVERTY

The IFPRI study found that in the Western Region R&D investment and education investment have so far produced by far the best returns in terms of impact on poverty. Road investment was the third most effective, but well behind R&D and education (Table 19-5).

Chapter 5 explained that there are unlikely to be many opportunities for developing nonfarm activities in the remaining poor villages. Therefore, agricultural extension and education are likely to continue to be crucial investments in the Western Region for poverty alleviation.

The IFPRI study did not cover health because the researchers were not able to get suitable data to incorporate in the analysis. However, Chapter 5 concluded that health investment was extremely important to poverty alleviation in the Western Region, certainly ahead of roads. Since only 9.1 percent of villages in the Western Region have tap water supply, investment in rural water supply is an essential for health programs to be effective, and health education programs need to accompany all rural water supply projects.

One of the most significant findings of the IFPRI study is the ineffectiveness of poverty loans in reducing poverty. This is consistent with case study findings on the actual use of poverty loans. The poverty loan program ties up substantial government resources in terms of both administration and the loan funds themselves. Therefore, better results in poverty alleviation are likely to flow from a redirection of effort to agricultural extension, health, education, and welfare assistance programs. Concentration on a few core poverty alleviation programs is likely to greatly reduce the opportunities for maladministration of funds.

### VILLAGES LACKING INFRASTRUCTURE

It is probable that the villages lacking basic infrastructure are the smaller, more remote villages. Even so, it is also likely that they accommodate the majority of the rural poor in the Western Region. The basic policy options open to local governments are resettlement or provision of infrastructure. Resettlement may be the best option for villages in nature reserves, villages for which infrastructure construction would be inordinately expensive, or villages that clearly do not have a long-term future. International experience is that remote rural

**Table 19-5 Returns of Public Investment to Poverty Reduction, per Year, 1997**

Sector	Yuan per Yuan Expenditure			PRC
	Eastern Region <sup>a</sup>	Central Region <sup>b</sup>	Western Region <sup>c</sup>	
R&D	1.99	4.40	33.12	6.79
Irrigation	0.55	0.77	4.06	1.33
Roads	0.83	3.61	10.73	3.22
Education	2.73	5.38	28.66	8.80
Electricity	0.76	1.65	6.17	2.27
Telephone	0.60	1.90	8.51	2.21
Poverty loan	0.88	0.75	1.49	1.13

Source: Shenggen Fan, Linxiu Zhang, and Xiaobo Zhang (2001).

<sup>a</sup> Includes Guangxi.

<sup>b</sup> Includes Inner Mongolia.

<sup>c</sup> Excludes Tibet (lack of data), Guangxi, and Inner Mongolia.

communities often lose their economic viability in a market economy. It may be appropriate to develop special adjustment programs to assist residents of remote villages.

It is essential to provide computers and Internet connections to all units of government and schools. Other countries have recognized the importance of ICT for tackling poverty, social inequality, and regional imbalance.<sup>23</sup>

## Notes

- 1 Yunnan Development Planning Commission, supplement to internal press release, March 2001.
- 2 Zhi Liu and Colin A. Gannon (1999), p.1.
- 3 World Bank (n.d.), "Transport and Poverty Reduction: A Background Note," p.1. <http://www.worldbank.org/html/tpd/transport/poverty>.
- 4 Team members' observations in Yunnan. Team members did not visit the most remote villages, but even those within a two-hour drive by jeep suffer from all kinds of development constraints. A two-hour drive by jeep is very deceptive: by tractor the same trip takes 15 hours and on foot five days. All the villagers that the team met said that the first requirement for poverty alleviation is the construction of all-weather roads.
- 5 The example in this paragraph comes from the *UNDP Volunteers Inspection Report of 2000–2001* on the ADB Infrastructure Construction Pilot Project.
- 6 Asian Development Bank (2000g), Chapter A13, p. 9.
- 7 *UNDP Volunteers Inspection Report of 2000–2001* on the ADB Infrastructure Construction Pilot Project.
- 8 Discussions with the Poverty Alleviation Office and academics from the Lanzhou University during the third workshop by the consultants in May 2001.
- 9 *UNDP Volunteers Inspection Report of 2000–2001* on the ADB Infrastructure Construction Pilot Project.
- 10 *UNDP Volunteers Inspection Report of 2000–2001* on the ADB Infrastructure Construction Pilot Project, p. 50.
- 11 Mendelsohn and Vicziany (1998), p. 160.
- 12 *UNDP Volunteers Inspection Report of 2000–2001* on the ADB Infrastructure Construction Pilot Project, p. 51.
- 13 On the Indian debate, see Mendelsohn and Vicziany (1998), pp.159–161.
- 14 The Chinese Academy of Social Sciences was one of the first groups in the PRC to experiment with microcredit as a way of alleviating poverty. The CASS is the PRC's most prestigious research institute and think tank. Most of its research projects are policy-oriented and often quite influential.
- 15 Asian Development Bank (2000g), Chapter 3, p. 93.
- 16 Wang, Park, and Li (2001).
- 17 Keynote address of Professor Mohammed Yunus, founding CEO and chief economist, Grameen Bank, Dhaka, Bangladesh, at the conference entitled "Democracy and Development in Bangladesh," National Center for South Asian Studies, Melbourne, 22 March 1997. For a review of the operations of the Grameen Bank see Asian Development Bank (2000g), Chapter A7, pp. 24–27.
- 18 Team members visited a minority village in Luquan County on 18 April 2001 and met a Mongolian family that had received a microcredit loan and had done very well. However, this was neither a particularly poor household nor was it a particularly poor village.
- 19 One good example of a successful scheme comes from Shaanxi, where 70 percent of the loans go to animal husbandry; 13 percent, trade; 10 percent, mining equipment; and 7 percent, crop planting.
- 20 Various commentators on the PRC's experience with microcredit have mentioned these limitations. See, for example, Park and Ren (2001) and Conroy (n.d.).
- 21 The consultants attended this monthly meeting on 20 April 2001 at the county headquarters, Lancang town. The managers were accountants, cashiers or vice presidents of townships administering the loans. Of the 16 managers, seven were women and nine were men. Microcredit first became available in Lancang County three years ago. The total amount of credit so far has been 11.4 million yuan, from three sources: ABC, the provincial government of Yunnan, and the Shanghai government. The Shanghai government had given an interest-free grant to the Yunnan government as part of the strategy for the eastern provinces and cities helping the Western Region.
- 22 Shenggen Fan et al. (2001).
- 23 See, for example, World Bank and the Organization for Economic Cooperation and Development (2000).

