

Poverty Alleviation in China: A Lesson for the Developing World?

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The title photo depicts the “traditional muslim market” in Urumqi - complete with a huge Carrefour market, KFC fastfood restaurant, and open food court. In the background the recently renovated mosque. The photo was taken in August 2005 by Gerhard K. Heilig.

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Introduction - China's Rural Development

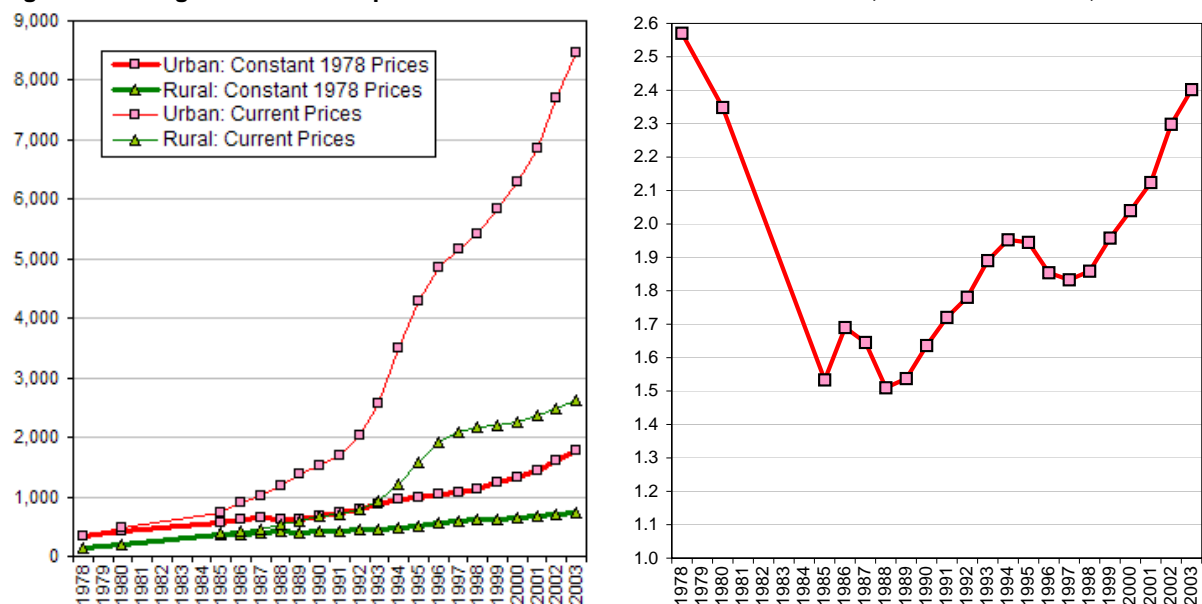
With Deng Xiaoping's economic reforms in the late 1970s China started its spectacular transition from a state-run economy, based on centralized command and control, to a modern economic system based on market principles and international cooperation. The first phase in these reforms was the introduction of the "household responsibility system" in the early 1980s, which essentially abandoned the system of communal farming and re-established the autonomy of the individual farm household. Millions of peasants were given the freedom (and responsibility) to plan and organize most of their production. They were no longer ordered around in semi-military formations to cultivate collectivized fields, dig irrigation canals, build dams, or even produce steel in backyard furnices, as was the case during the "Great Leap Forward".

They were no longer coerced into unproductive cultivation by "Grain First" policies and strictly fixed grain quotas, which often forced them to produce crops under most unsuitable conditions. Now they could switch to the production of more profitable products, such as vegetables, fruits, tobacco or cotton, run fishponds or breed animals; and they could sell part of their production on free markets. They (or more often their children) could accept off-farm jobs in the emerging village industries, and they could join the millions of temporary migrants who went for labor in east-coast cities. With their remittances they greatly contributed to the economic development in the rural areas.

We often tend to forget, that China's spectacular economic growth in manufacturing industries and service sectors during the past 15 years was actually based on a fundamental reform of the *agricultural* sector almost 30 years ago. After decades of collectivization, mass campaigns and political indoctrination, farmers were allowed to make their own decisions and carry out their own initiatives. It was essentially the (cautious) introduction of *entrepreneurial freedom* (even if these words were never used) among millions of peasants. One of the biggest and most rapid rural development programs in human history was not triggered by huge public investments in infrastructure, or education or public spending, but by a change in the mentality among the leading cadres, who had learned to understand Deng's saying that it is "not important whether a cat is gray or black, as long as it catches mice". It was the pragmatic recognition that the Chinese agriculture can only develop, if farmers have the freedom to make their own (economic) decisions.

As a consequence of this fundamental change in policy, China's food supply greatly improved and the rural areas began to develop. Millions of peasants were lifted out of poverty. The average annual net income of rural households (in constant 1978 prices) more than doubled - from 343.4 RMB in 1978 to 735.7 RMB in 2003 (see Figure 2, left side and Tables A1 and A2 in the Appendix). In fact, the ratio between real urban and rural income *improved* considerably between 1978 and 1988: While the urban income in 1978 was almost 2.6 times higher than the rural income, it was only 1.5 times higher in 1988. In the first decade of economic reform, between 1978 and 1988, the income gap between rural and urban areas began to narrow. However, since 1989, the urban-rural income gap was widening again; and in 2003, the urban income was again 2.4 times higher than the rural income (see Figure 2, right side and Table A3 in the Appendix). Moreover, there are huge regional divergences in both the rural and urban income growth. In Beijing, Tianjin, Shanghai, Zhejiang, and Guangdong, *both* rural and urban incomes are much higher than in Ningxia, Guizhou, Gansu, Shaanxi, Tibet, Yunnan or Heilongjiang. By far the

Figure 1: Average Annual Per Capita Income of Rural and Urban Households; Urban-Rural Ratio, 1978-



Notes:

Rural Net Income refers to the total income of permanent residents of rural households during a year, after deduction of expenses for productive and non-productive business operations, payment of taxes and payment to collective units for their contracted tasks. It also includes the income from non-business operations, such as money remitted by household members who are in other places (migrant workers), government relief payments and various subsidies. It is an indicator that shows the actual level of income of rural households.

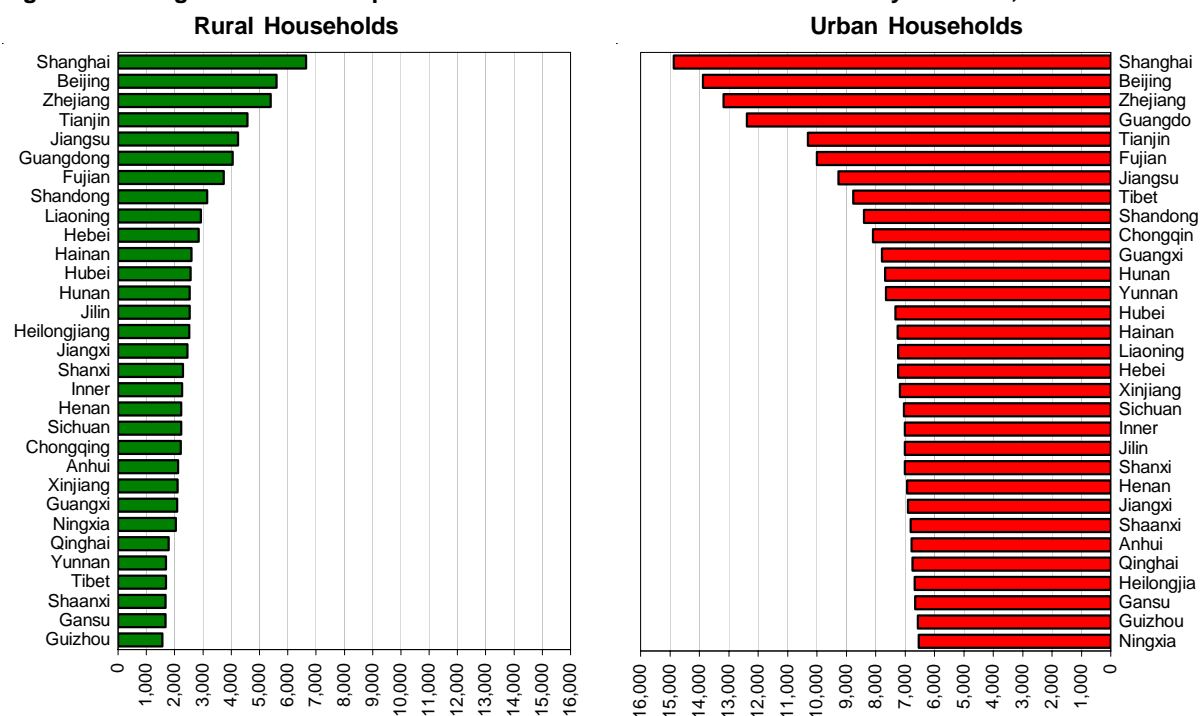
Urban Disposable Income refers to the actual income of urban households, which can be used for daily expenses. It equals the total income plus household subsidies, minus personal income tax and expenditures on household sideline production.

Both the rural and urban income is real income in 1978 constant prices.

Source:

China Statistical Yearbook, 2004, Table 10-2. The Real Net (Disposable) Income was calculated by multiplying the real income index by the nominal income value of the base year (1978) provided in Table 10-2.

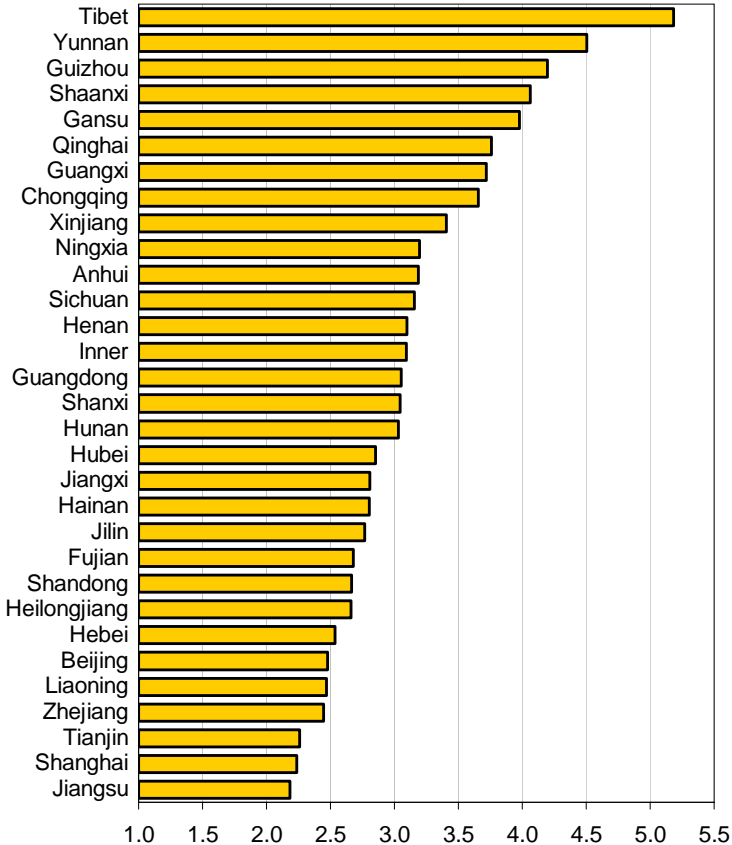
Figure 2: Average Annual Per Capita Income of Rural and Urban Households by Province, 2003



Source:

China Statistical Yearbook, 2004, Table 10-21 and Table 10-15

Figure 3: Urban-Rural Ratio in Average Annual Per Capita Income by Province, 2003



Source: China Statistical Yearbook, 2004, Table 10-21 and Table 10-15.

biggest gap between rural and urban income was reported from Tibet, where, in 2003, urban households had more than 5 times the income of rural households. A very high income gap was also reported from Yunnan, Guizhou, Shaanxi, Gansu, Qinghai, Guangxi and Changqing. On the other hand, Jiangsu had the smallest rural-urban income gap in 2003, where urban households had roughly twice the per capita income of rural households. *Relatively* small rural-urban income gaps were also reported from Shanghai, Tianjin, Zhejiang and Liaoning.

In conclusion, we can identify three rural-urban income trends in China:

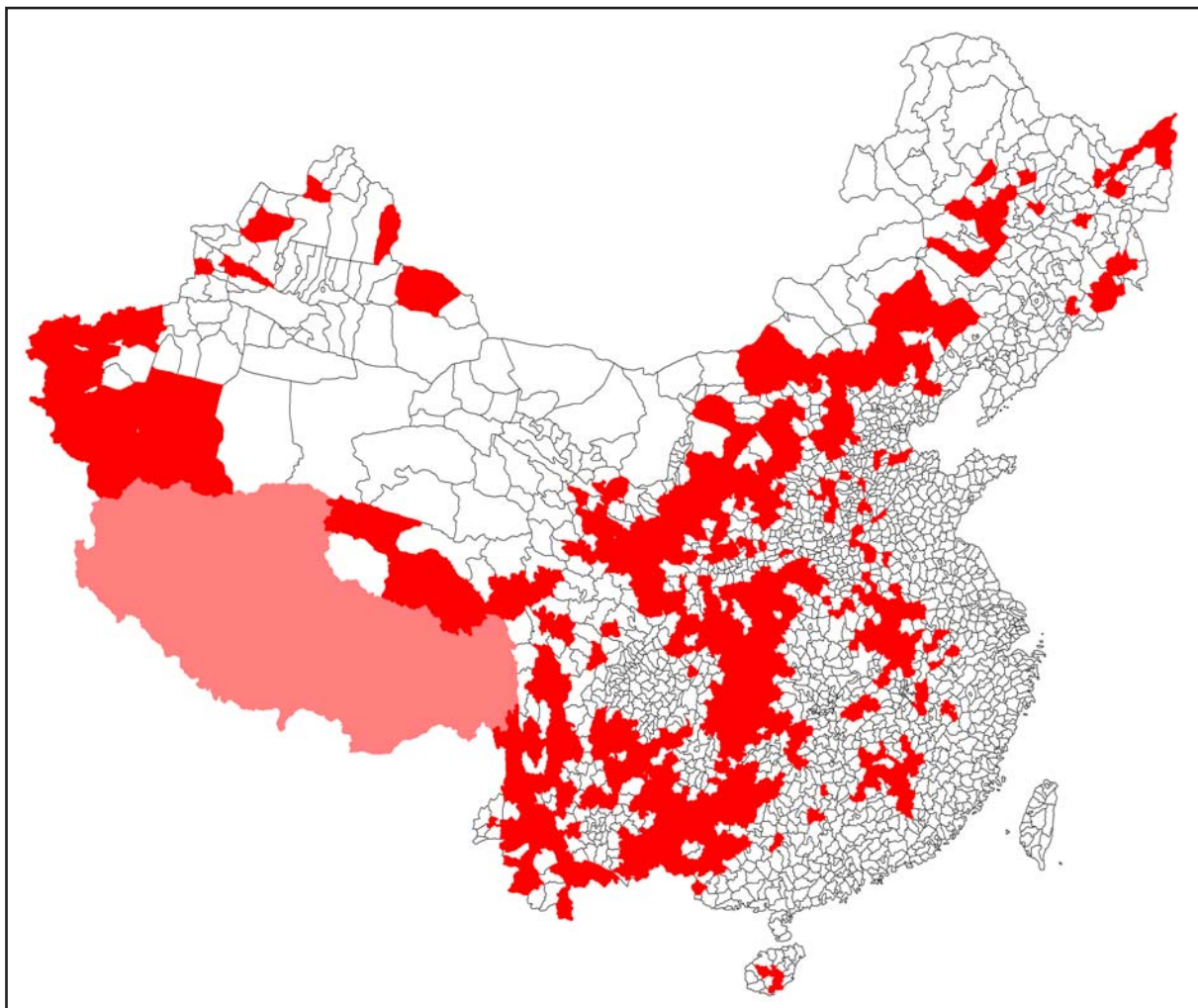
- China’s rural population had significant income growth in *real terms* since 1978. This clearly improved the situation of hundreds of millions of peasants in the country.
- The rural-urban income gap, which was *declining* between 1978 and 1988, has been *widening* since 1989 and is now almost at the same level as in 1978. However, the recent reform of the agricultural tax might stop or even reverse this widening of the rural-urban income gap.
- There is a huge regional variation in rural-urban income gap. Eastern and southern provinces have a much smaller rural-urban income gap than provinces in central, northern and western China. This indicates, that high economic growth in the urban-industrial centers of eastern and southern China had some trickle-down effects on the adjacent *rural* areas - most likely due to remittances of migrant workers.

Poverty in China

While the spectacular growth of China's agriculture - particularly in the first decade after the 1978/79 reforms - has significantly improved the situation in rural areas, not everyone could participate. According to China's own estimates there were still some 26 million people living in extreme poverty in 2004; and about 76 million were below the official low-income line of 924 yuan per person per year (see Table 1 and Figure 4). The Office of Poverty Alleviation and Development at the State Council Leading Group has published an official list of "poverty counties" that receive special support for poverty alleviation. As can be seen from Map 1, these counties are concentrated in a poverty belt that stretches from the Northeast to the Southwest and from the center of China to the far western province of Southern Xinjiang.

We have used our Geographical Information System (GIS) to aggregate county-level statistics for poverty and non-poverty counties (see Table 2). Unfortunately, we had access to only a very limited set of geographic and geo-physical data at *county* level. While the officially designated poverty counties can be found almost everywhere in China - from the far North to the most Southern provinces and from the Center to the Far West (see Map 1) - they still have some remarkable geo-physical similarities. Most poverty counties are located in mountain areas. On

Map 1: Key counties for poverty alleviation and development, 2001



Note: This map includes the 592 key counties for poverty alleviation and development plus the 74 counties of Tibet, which are also included in the large-scale integrated government action to combat poverty. Please note that the map cannot show 9 very small rural town districts, which are also included in the poverty program.

Source: The State Council Leading Group, Office of Poverty Alleviation and Development, May 14, 2004

Table 1: Number of Rural Poor based on Poverty Line and Low-Income Line, 1978 - 2004

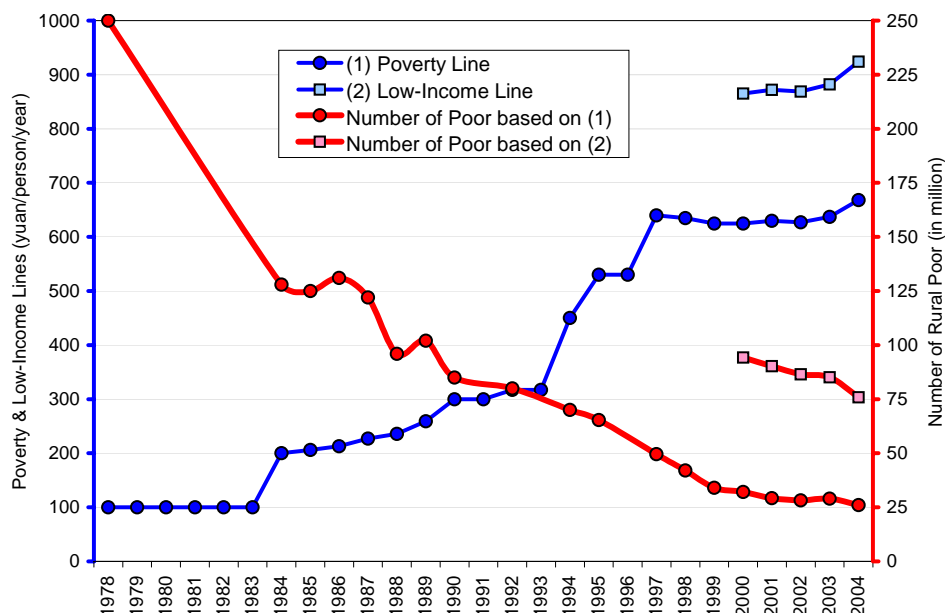
Year	Poverty Line Source (1)		Low-Income Line Source (2)		Source (1)
	Cut-off Line	Number of Poor	Cut-off Line	Number of Poor (additional)	Total
1978	100	250.0			
1984	200	128.0			
1985	206	125.0			
1986	213	131.0			
1987	227	122.0			
1988	236	96.0			
1989	259	102.0			
1990	300	85.0			
1992	317	80.0			
1994	450	70.0			
1995	530	65.4			
1997	640	49.6			
1998	635	42.1			
1999	625	34.1			
2000	625	32.1	865	62.1	94.2
2001	630	29.2	872	61.0	90.2
2002	627	28.2	869	58.3	86.5
2003	637	29.0	882	56.2	85.2
2004	668	26.1	924	49.8	75.9

Sources

(1) National Bureau of Statistics of China, Rural Survey Organization, 2004: Poverty Statistics in China (September 2004), p. 9

(2) National Bureau of Statistics of China, 2005 (May 13): Communique on 2004 Rural Poverty Monitoring of China. Beijing (Downloaded: September 15, 2005 from the official NBS web site at: www.stats.gov.cn)

Figure 4: Number of Rural Poor based on Poverty Line and Low-Income Line, 1978 - 2004



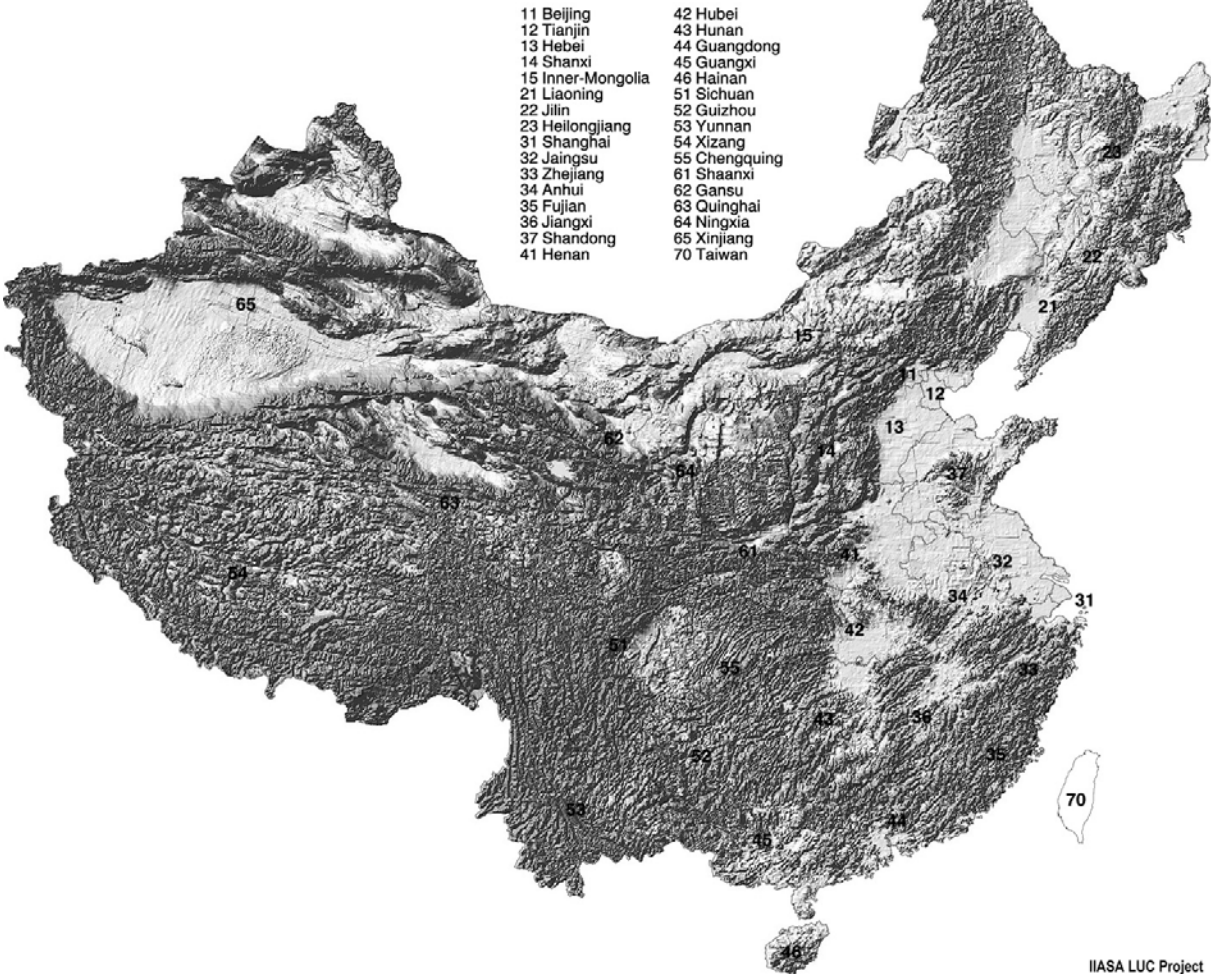
Note: This table displays the official poverty headcount in China, based on the corresponding poverty line and low-income cut-off lines. The poverty line was increased from 100 yuan per person per year in 1978 to 668 yuan in 2004. Poverty statistics based on the low-income line are available since 2000, when the cut-off point was at 865 yuan per person per year. Since then the low-income line was increased to 924 yuan. According to these criteria, the most severe poverty in China was reduced from 250 million in 1978 to 26 million in 2004 (based on poverty line) and from 95 million in 2000 to 76 million in 2004 (based on the low-income line).

Table 2: Selected indicators at county-level, 2001

Indicators	Non-Poverty Counties	Poverty Counties
Economy		
GDP (yuan per capita)	5,050.1	2,689.5
GDP of primary industry (yuan per capita)	1,390.4	1,084.2
GDP of secondary industry (yuan per capita)	2,038.3	782.4
Employment in tertiary sector (in % of all employed)	19.8	11.1
Employment in secondary sector (in % of all employed)	15.8	4.9
Government expenditures (yuan per capita)	385.2	452.4
Non-agricultural population (in % of total population)	24.3	11.7
Education		
Student enrollment of secondary schools (in % of total population)	5.1	4.7
Student enrollment of primary schools (in % of total population)	8.9	12.3
Illiterate population (in % of total population age 15 and older)	9.6	20.7
Population with no school (in percent of population age 6+)	7.5	16.4
Population with college degree (in percent of population age 6+)	0.75	0.19
Average years at school	7.5	6.0
Demography		
Total population (in million) /1	1,057	211
Population density (persons per km ²)	787.6	144.6
Ethnic Minority population (in % of total population)	10.7	39.3
Rural population (in % of total population)	65.7	85.3
Birth rate (birth per 1000 of the population)	11.6	15.6
Natural growth rate (per 1000 of the population)	5.7	8.6
Death rate (per 1000 of the population)	5.9	7.0
Total fertility rate (TFR) (from 9.5% sample survey)	1.27	1.71
Infrastructure		
Road length (m per km ² of land area)	99	68
Hospital beds (per county)	737	451
Hospital beds (per 10,000 of the population)	17.5	16.6
Hospital beds (per km ² of land area)	0.71	0.2
Households with telephone (in % of all households)	28.4	16.5
Households without tap water (in % of all households)	5.3	7.4
Households with bath facility (in % of all households)	2.3	0.8
Households with WC (in % of all households)	6.6	5.9
Agriculture		
Cultivated land (in % of total land area)	40.1	20.7
Per capita cultivated land (hectare per person)	0.201	0.195
Average grain yield (kg per hectare)	4,896	3,399
Physical Characteristics (climate, topography)		
Slope above 8 degree %	36.1	72.2
Slope above 15 degree %	29.2	60.3
Slope above 30 degree %	14.6	29.3
Average altitude (in meters)	566	1,633
Average precipitation (in mm per year)	972	825
Accumulated temperature (?10 degree celsius per year)	4,356	3,217
Average temperature of warmest month in the area (degree celsius)	29	25
Average temperature of coldest month in the area (degree celsius)	-7	-10

Source: Calculation by the authors, based on GIS

Map 2: China's Topography - A Shaded Countour Map based on DEM Data



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Data Source: U.S. Geological Survey, EROS Data Center: GTOPO30 Digital Elevation Model (Data downloaded from EROS web site) Note: These maps are based on the 30 Arc seconds (approximately 1 kilometer) elevation grid data from the EROS data center.

average, 72 percent of their area is covered with slopes above 6 degrees, as compared to just 36 percent in non-poverty counties. More than 60% of the area in poverty counties, on average, is covered by slopes with more than 15 degrees, versus 29 percent in non-poverty areas. Very steep terrain with slopes above 30 degrees covers almost 30 percent of the area in poverty counties – as compared to just 15 percent in non-poverty counties (see Table 1). The average altitude of poverty counties is three times higher than that of non-poverty counties – 1633 meters as compared to 566 meters (see Map 2). Poverty counties have also cooler climate: the cumulated temperature above 10 degrees Celsius is 3,217 versus 4,356 for non-poverty counties. These data show that poverty counties have much harsher natural conditions than non-poverty counties. Table 2 highlights some of the advantages and disadvantages of the various regions.

As can be seen from Map 1, there is not a single poverty county in China's coastal regions. It seems that both rural counties and urban areas in coastal provinces have several "natural" and economic advantages – such as close distance to a sea harbor, which is increasingly important for China's rapidly growing *export* industry. China's high-growth coastal regions (Guangdong, Shanghai, Beijing, Tianjin) are also characterized by growing *middle-class* populations, which form large domestic consumer markets. The distance from the producers to these increasingly wealthy domestic consumers is typically much larger in China's Interior or Western provinces than in coastal regions.

China's Western provinces are land-locked and separated from the Chinese "heartland" in the East. Many counties in the far western part of Xinjiang, for instance, are separated by the Taklimakan desert from the main population centers. They are also separated by mountain ridges from the neighboring countries of Tajikistan and Turkmenistan. These physical characteristics of distance, altitude, landform, and climate as well as the economic disadvantages of market-distance may explain why counties in interior and western regions of China will probably *never* be able to reach the same development level as counties in the coastal provinces.

The (relative) success story of rural income growth, outlined above, cannot hide the fact that pockets of severe poverty still exist in China's rural areas – particularly in the central and western parts of the country. The trickle-down effects of the spectacular economic growth in Guangdong, Shanghai, Beijing or Tianjin did not reach the more remote parts of the country.

Available data seem to indicate that *natural conditions* are often responsible for the persistence of poverty in China. For instance, *topography* is certainly an important factor. Poor people in China usually live in remote mountain areas – frequently at high altitude or on steep terrain. The *infrastructure* is usually bad. Villages in poverty areas have poor roads, unstable or lacking electricity and telecommunication, and few facilities for education, training, and health care. While only 10% of the population in non-poverty counties was illiterate in 2001, it was almost 40% in poverty counties.

Poverty in China is certainly also *climate*-related. Statistics on crop production values in Yuan per hectare (see Map 4) indicate that the arid and semi-arid areas west of Beijing, reaching down to Ningxia and further west to Gansu, have the lowest agricultural productivity - primarily due to harsh agro-climatic conditions. As we can see from a precipitation map (see Map 3), these areas typically get less than 600 mm of rainfall per year, which makes it impossible or highly difficult to cultivate crops under rain-fed conditions.

Labor opportunities outside of agriculture are very scarce in poverty counties. Only few people are employed in industry or service sectors. The villages of poverty counties are typically separated from regions with modern manufacturing industries and wealthy consumer markets by long distance, insufficient infrastructure or natural barriers, such as mountain ridges, deserts, swampy lands, or mighty rivers.

Finally, it seems that *ethnic and cultural factors* are associated with persistent poverty in China – almost all designated poverty counties have a high percentage of minority population. On average, the percentage of minority population in poverty counties was four times higher than in non-poverty counties (see Table 1 and 2).

Poverty Alleviation

To combat poverty under these special conditions, targeted programs are necessary. Below, we will discuss several development measures that seem to have special relevance for promoting development in the poverty areas of central and western regions.

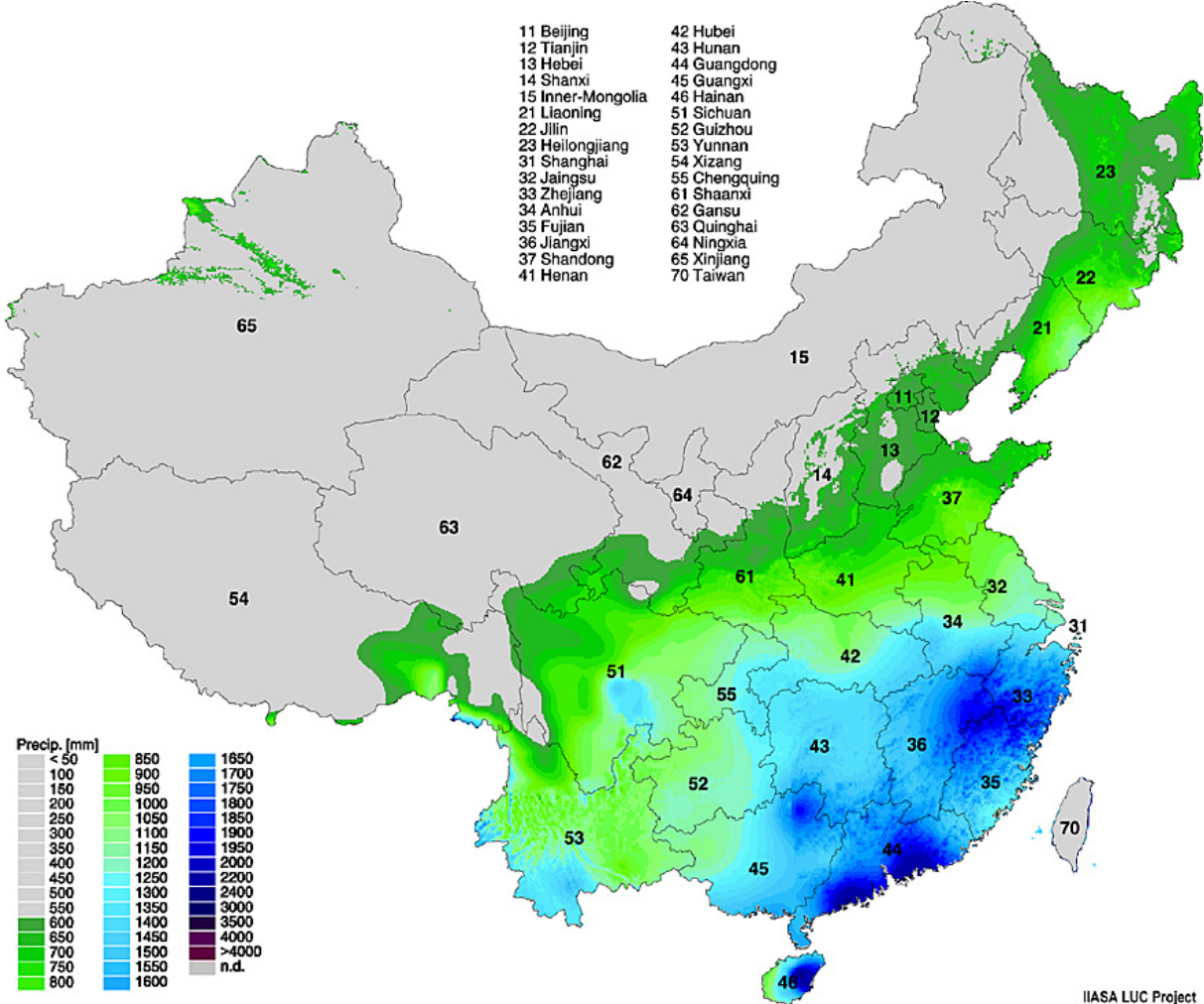
1. Subsidized Loans for Poor People

To combat poverty, the Chinese government has established a program on poverty alleviation. In 2001, it included 592 key counties plus the 74 counties of Tibet. Most of the poverty counties are located in China's Central and Western provinces (see Map 1).

Since 1986, China’s government has implemented a scheme for providing subsidized loans to poor people. The County Poverty Alleviation Offices are selecting projects, which have to be approved by the “County Leading Group Offices for Economic Development in Poor Areas”. According to Wu Guobao of the Rural Development Institute at the Chinese Academy of Social Sciences, the annual amount of subsidized loans has increased from 1.05 billion RMB in 1986 to 5.5 billion RMB in 1996 (Wu, undated).

Unfortunately, these subsidized loans have not always found their way into the hands of poor people. Since the local governments have the authority to select projects for receiving subsidized loans, it sometimes happens that county- or township-operated enterprises, rather than individual households, are selected. Poverty loans are thus misused to subsidize (unproductive) township enterprises. Guobao Wu has argued that the “Chinese poverty alleviation strategy is basically a trickle-down regional economic development strategy, in which the income growth of poor households is expected to be realized via regional economic development”. It seems, that a “privatization” of poverty loans could streamline the government efforts to alleviate poverty. Loans should be allocated to individual (farm) households rather than to “projects” – which are often just unproductive village or township enterprises. The concept of individual “micro

Map 3: Average Annual Precipitation in China: Area with Precipitation of more than 600 mm



This map was developed at the IIASA LUC Project. Primary Data Sources: Leemans, R. and W. Cramer, 1991, The IIASA database for mean monthly values of temperature, precipitation and cloudiness on a global terrestrial grid, IIASA Report, RR-91-18, Laxenburg, 63pp. And: Institute of Soil Science, Accademia Sinica, 1986, The Soil Atlas of China, Cartographic Publishing House, Beijing, p. 6

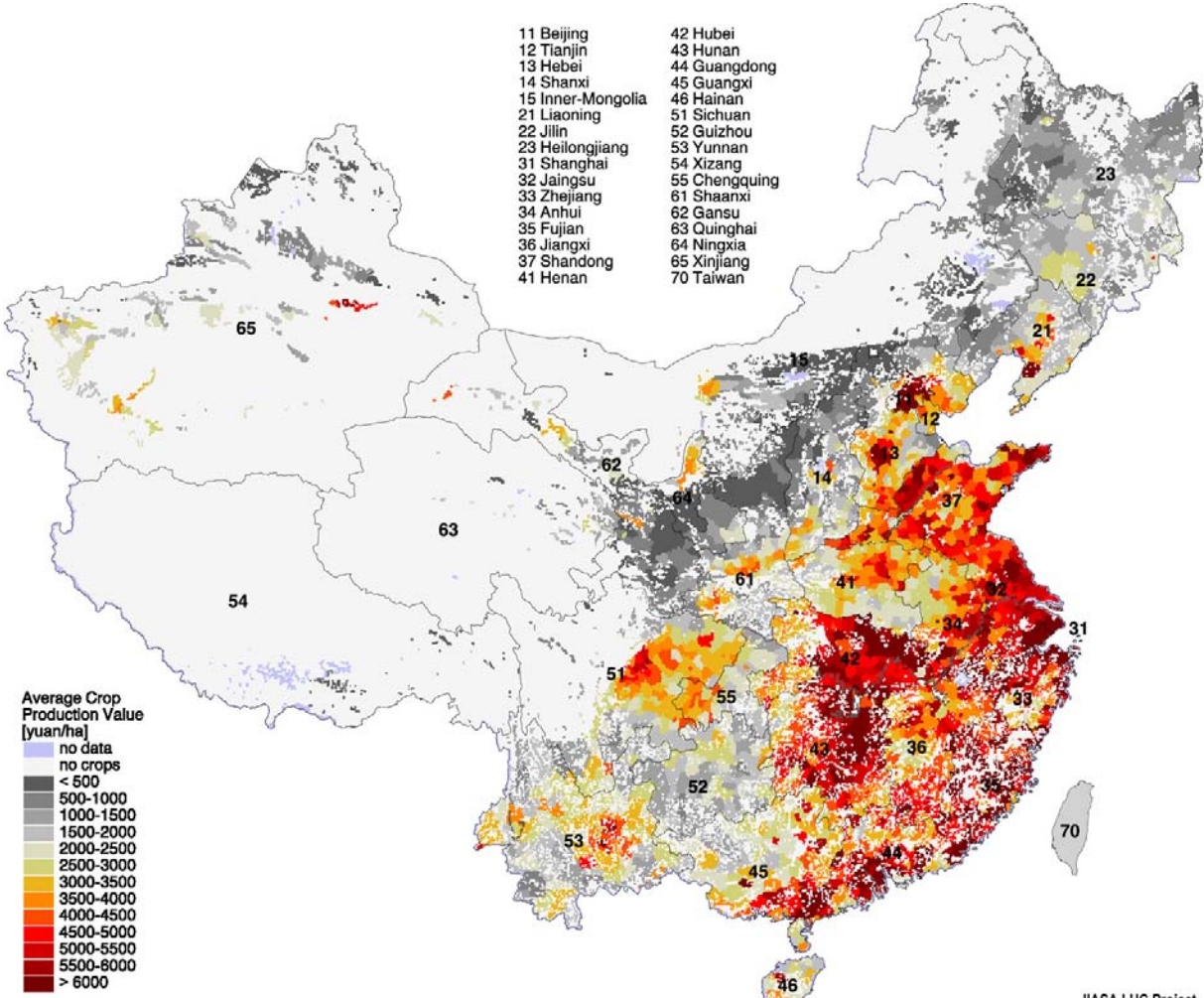
credits” as promoted by the World Bank may be more effective in poverty alleviation than the project-based subsidized loan program adopted by the Chinese government.

2. Food for Work Program

Another program of the Chinese government to combat poverty is the “Food for Work” scheme. Between 1986 and 1997 the central government spent some 33.6 billion Yuan RMB in the “Food for Work” program. Apparently, the government has second thoughts about the efficiency of the program, because it was downsized considerably since 1994/95, when more than 6 billion annually were spent, as compared to only 3 billion in 1996/97. Initially the “Food for Work” programs were focused on infrastructure construction, such as the building of roads and drinking water systems. However, by the late 1980s these programs also included infrastructure projects in agriculture.

In general, “Food for Work” programs have a serious disadvantage: The work is provided by some kind of collective development scheme that may, *or may not*, be in the best interest of individual households. Local leaders may be more interested in using the funds for implement-

Map 4: Crop cultivation in China: Crop production value (in Yuan / hectare)



This map was developed by the IIASA LUC-Project. Primary Data Sources: (1) State Land Administration of the People’s Republic of China / United Nations Development Program / State Science and Technology Commission of the People’s Republic of China / Food and Agricultural Organization of the United Nations: Land Resources - Use and Productivity Assessment in China. Project CPR/87/029, Beijing, 1994. (2) Institute for Remote Sensing Applications: Land-cover map of China. Beijing, 1994

ing some prestige project, which gives them political gratification, than in actually providing long-term benefits for the poor. The initiative is actually taken away from the poor; because they are essentially laborers in projects designed by others.

3. Agricultural Tax Reform / Agricultural Subsidies

After de-collectivization of the agriculture and the introduction of the “household responsibility system”, the financial basis of villages and local cadres in China had deteriorated considerably. Previously, agricultural income was shared by the collective, and thus could also provide income for the village administration and the local cadres; now it belonged to the individual farm household. While townships and counties received government funds from a revenue-sharing system, the villages and local cadres were left on their own. As a consequence they began to introduce or increase various fees and levies. Apart from the profit of village enterprises, these village-retained fees became the only legitimate source of income for the village.

During the mid-1990s the situation of the farmers in China became increasingly serious when they were more and more suffering under the combined burden of agricultural tax and village-retained fees. According to estimates by Aubert and Li, the percentage of taxes and fees in the farmers’ income increased from 9.3% in 1990 to 12.2% in 1994. Local cadres became increasingly “creative” in inventing all kinds of new levies and fees. Concerned with rising discontent among farmers, the government began to reform its century-old system of agricultural taxes.

In a first step the “Tax-for-Fee” reform was introduced. It began in 2000 as an experiment in Anhui province. The objective was to replace the various fees with one unified agricultural tax - based on the size of the cultivated area. While the tax was (slightly) increased, all other fees and levies should have been reduced or removed. This reform had some success in removing the most outrageous burdens, but it was apparently not radical enough. The central government became increasingly concerned that the WTO accession of China might overburden the farmers and thus decided in March 2004 to completely remove agricultural taxes within 5 years. Subsequently, in January 2005, the government decided to speed up this process and the taxing of agriculture was stopped in 25 provinces.

In addition the government also decided to introduce - for the first time - agricultural subsidies. According to the new agricultural policy of 2004 farmers would receive direct payments for grain cultivation, subsidies for high-quality grains and soybeans, and subsidies for the purchase of machinery. The government also decided to increase funds for rural infrastructure, such as irrigation facilities, electricity generation, roads, etc. Fred Gale and co-authors have estimated that the new agricultural policy in China allocated funds equivalent to at least 25 billion US\$ (Gale, et al. 2005, 3).

It is obvious that these reforms can certainly help to increase farmers income. They might even close the gap between rural and urban areas, which has been widening since 1979 (as we have shown above). However, they will do little to alleviate poverty in China. These reforms are clearly targeted to the farmers in the main grain producing areas. However, many of China’s poor live outside the major agricultural regions. Some are nomadic or semi-nomadic tribes that live from animal husbandry. They have already paid little or no taxes, because they live in very remote areas with low administrative density. Reducing or removing taxes will not significantly improve their situation.

4. Grain for Green Program

In 1999, China started the “Grain for Green” program, one of the most ambitious conservation schemes in the developing world to prevent soil erosion – primarily through reforestation of grain land or conversion into grassland. While the main target of the program is to improve the environment, it has important side effects for economic development and poverty alleviation (Uchida / Xu / Rozelle, 2004).

The scale of the program is quite impressive: According to plan, almost 15 million hectares of cropland should be set aside for reforestation or conversion into grassland; of which more than 4 million hectares should be on steep slopes with at least 25 degrees (World Wildlife Fund, 2003). Farmers, who set aside these crop areas, are compensated in cash, grain, and seedlings. Each farmer receives 1500 to 2250 kg of grain per hectare per year, 300 Yuan RMB per hectare per year in cash payment, and free seedlings (worth approximately 750 Yuan RMB) at the beginning of the conversion program (Uchida / Xu / Rozelle, 2004, p.8). The program is carried out in more than 20 provinces; there is a strong geographical focus on the upper and middle reaches of the Yangtze and Yellow river.

Emi Uchida, Jintao Xu, and Scott Rozelle have undertaken a cost-effectiveness and sustainability study of the “Grain for Green” program. Among other things, they found that the program is a “*win-win proposition at least in the short-run. Not only does the program provide higher incomes but the farm households have access to additional family labor that is now not needed for use on the set-aside plots.*” (Uchida / Xu / Rozelle, 2004, p.17). The Grain for Green program, in fact, might be considered a valuable tool for poverty alleviation, since it is targeted to mountain areas with steep slopes – areas, which are often cultivated by the poorest farmers.

However, there are several fundamental problems, which make the Grain for Green program unsuitable for combating poverty:

- The program is not targeted to poverty areas, but to areas with soil erosion. While there is a certain overlap between the two, we can still find many places with poverty where the program criteria for reforestation would not be applicable.
- The program is focused on farmers, who are compensated for setting aside some of their (marginal) cropland. Many poverty areas, however, are located in arid or semi-arid grasslands with little or no crop cultivation.
- Areas for the Grain for Green program have to be monitored by the local administration to make sure the criteria for compensation are met. This may be the reason, why Grain for Green areas are often located along roads. Many poor people, however, are living in very remote areas, where the local administration is rarely seen.
- The Grain for Green program allows the planting of some 20% of “economic trees” which the farmers could use commercially (in contrast to “ecological trees” that should not be harvested). The idea is that farmers should plant trees that produce fruits or nuts. But a few scattered “commercial trees” planted on steep terrain may not be sufficient to compensate the losses from the set-aside cultivation land.
- Finally, it is quite unclear, how the reforested areas should be managed and used commercially in the long run. Will the planted trees become property of the farmers, which they can cut and sell after a few years? The program does not include a viable economic concept of what the farmers could do with the converted areas *after* the program has ended. In fact, they may re-convert the reforested areas to cropland again.

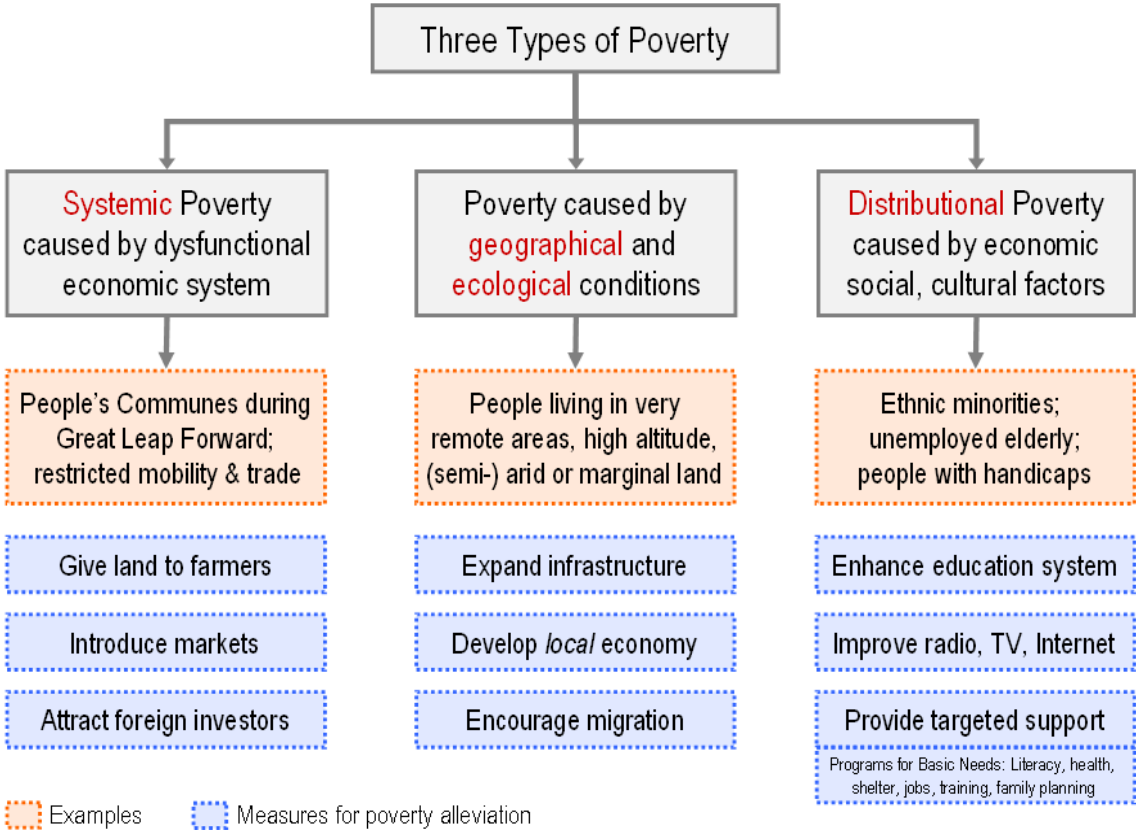
The Grain for Green program is focused on environmental protection - not on poverty alleviation. Instead of compensating some 15 million farmers for a questionable environmental program, the government may consider to re-direct the money to the real poverty areas.

5. Expansion of Transportation Infrastructure

Roads are essential for economic development. Since 1985, the Chinese government has given high priority to the construction of an effective transportation infrastructure. However, most of the resources were used for the construction of high-quality roads and railways, such as highways and fast-speed railways connecting the major industrial centers in the coastal provinces. This development of expressways was quite spectacular: the total length increased from just 147 km in 1988 to 25,130 km in 2002. By contrast, the length of low-quality, mostly rural roads increased by just 3% per year over the same period (Fan / Chang-Kang, 2005). Apparently, China’s government is more interested in connecting already existing growth centers with adequate transportation infrastructure, than in providing better access to (remote) rural areas.

Shenggen Fan and Connie Chang-Kang have analyzed the economic impact of China’s road infrastructure development and found that the national GDP impact of low-level road construction would be roughly four times greater than the effect of the high-quality expressway construction. In other words: for a more effective development it would be necessary to focus on the development of *rural* (secondary) roads in Central and Western China and not on the construction of intercity highways in the East. The authors believe that the construction of lower-quality roads in remote areas would especially benefit the rural poor.

Diagram 1: Major Types of Poverty and Corresponding Poverty Alleviation Methods



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Conclusions

China is currently undertaking the epochal transition from an agricultural to an industrial and service-oriented society. As in all such transitions, a gap can open up between the development of traditional and modern economic sectors. While modern industrial and service sectors are growing rapidly, traditional sectors, such as agriculture and forestry, might be lagging behind. China also faces this problem of a rural-urban income gap. In fact, in recent years, the gap between rural and urban areas has been widening, in particular, because rural areas are mainly located in China's land-locked interior provinces, which have been developing much slower than the (more urbanized) coastal areas. But the gap was even wider *before* the economic reforms of 1978/89. In any case, compared to other developing countries, China was extremely successful in increasing rural income, and lifting millions of peasants out of poverty. In fact, China should be a lesson to all those development experts, who believe poverty alleviation in developing countries would primarily require big increases in development aid. Fact is, China substantially reduced its poverty population simply by abandoning economic utopia and accepting the basic rules of entrepreneurship and market mechanism.

Of course, as in (almost) any other country there is still severe poverty in China. This poverty, however, seems to be largely restricted to rather specific areas and segments of the population. As we have shown in our analysis, many poverty regions are located in mountain areas with poor accessibility, deficient infrastructure, and great distance to major consumer markets. Conditions for agriculture or animal husbandry are often very poor and there are few other economic opportunities. Only tourism might become a new source of income - if the area has natural beauty or historical and cultural monuments. Specifically targeted programs are necessary to develop these areas and contribute to a further reduction of poverty in China.

From a conceptual point of view, it may be useful to distinguish three types of poverty in modern China (see Diagram 1):

The first type of poverty can be called "systemic". It results from an inefficient, dysfunctional economic system that is isolated from the world economy. The history of the 20th century should have taught us a lesson, that economic systems based on centralized command and control, with absent or heavily distorted markets and lacking incentives are simply dysfunctional. The former USSR, Eastern Europe, Maoist China, and several copy-cat states in Africa after decolonization (Tanzania, Egypt under Nasser), are examples. All these countries had experienced massive economic crises or at least very slow economic growth which was a root cause of their poverty (Dollar / Kray, 2002). The spectacular poverty alleviation in China since 1978 has been, first and foremost, a reduction of *systemic* poverty, as Deng Xiaoping essentially abandoned the country's planned economy and opened it up for foreign direct investment. While globalization is still the "ultimate enemy" among intellectuals, or at least a subject of intense debates (Bardhan, 2004; Harrison / Rutherford / Tarr, 2003; Khan / Riskin, 2000), for China, it was clearly the biggest poverty alleviation program imaginable, as many *millions* of impoverished peasants found jobs in the flourishing export industries. This should be a strong message to all those countries that still have serious poverty: get your economy in order and open it up to global trade!

The second type of poverty can be found almost everywhere in the world. It is related to specific geographic, environmental, and agro-climatic conditions. In China, these are areas in the Plateau region of Qinghai, in Tibet, Xinxiang, Guixhou, Guangxi, or Yunnan, but also in parts of Inner Mongolia and in the Loess Plateau. These "poverty regions" usually have *multiple* natural disadvantages: insufficient precipitation, a too cold or too hot climate, high altitude, steep slopes,

chemical or mechanical soil constraints, hydrological problems (frequent flooding), or serious water or wind erosion. Many of these areas are also very remote due to insufficient infrastructure or simply far away from population concentrations. People living in these kinds of areas have always a greater risk of poverty than people living in fertile flood plains. For instance, in Europe, mountain farmers are typically the poorest section of the population. Not much can be done to alleviate this type of poverty. As long as people in these areas depend on agriculture or animal husbandry the natural limitations determine their level of economic development. Of course, it is possible to develop a *non*-agricultural local economy (such as tourism), but the possibilities are limited. Better infrastructure would help, but in the end, temporary labor migration or permanent resettlement (facilitated by better infrastructure) is probably the only realistic option of alleviating this type of poverty.

The third type of poverty is distributional poverty. It is caused by social and economic injustice, cultural factors, or individual handicaps. This type of poverty can be also found everywhere in the world - including the most advanced societies. It is certainly the most difficult and resistant type of poverty, because very often it is associated with sentiments of guilt, inferiority, and hopelessness among those who are affected. It can be deeply rooted in certain cultural characteristics, such as the cast system in India. In that context, poverty is not only a economic or social problem, but has a religious foundation and is considered "punishment" for a previous existence. In this type of poverty we often find a vicious cycle, in which poor people become entangled *accross many generations*. This inheritance of poverty is especially troubling, because children raised under these conditions have little chance due to deficient education, lacking social and economic skills and discrimination by other groups in the society. In China, this type of poverty can be often found among certain stigmatized ethnic groups, which are considered "backward" by the Han majority. It is also typical for the homeless people roaming the streets of big cities, begging or looking for jobs. Some of them may be uprooted migrant workers, who left their families in the rural areas. Others are elderly unemployed workers who have lost their jobs in the state-owned industries and are unable to compete in the modern private sector. But there are also physically or mentally handicapped living in poverty. Many homeless people actually have serious mental problems, but do not get proper treatment or care due to a lack of health insurance.

The only realistic way out of this type of poverty are targeted support programs, particularly for the children. It is absolutely essential that the children get proper basic education and training for a job. It is also necessary to bring better support and information to these population groups - particularly concerning basic hygiene and health care (immunization against infectious diseases), family planning, healthy nutrition (such as encouragement of breast-feeding) and access to clean drinking water. The measures simply have to break the vicious cycle of poverty, illiteracy, poor health, high infant mortality, and, ultimately, short life expectancy.

We have distinguished these three types of poverty, because in the current discussion we can often find a rather naive approach to poverty alleviation, which considers increased foreign aid as the central method in the developing world. While this may certainly be one of the necessary measures, it is essential that poverty-affected countries in Africa, Asia and Latin America first get their economic system in order, and secondly, develop a clear concept of *regional* development - if necessary, including resettlement programs for people living in extremely disadvantaged regions. In a third step specific poverty alleviation measures are necessary that must be highly targeted to improve basic living conditions, education, and health among the poverty affected population. Just transferring foreign aid to corrupt or incompetent national or regional governments will not help the poor.

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Appendix

Table A1: Average Annual Net Income Per Capita of Rural Residents, 1978-2003

Table A2: Average Annual Disposable Income Per Capita of Urban Residents, 1978-2003

Table A3: (4) Rural-Urban Ratio of Real Income; (5) Rural Engel Index; (6) Urban Engel Index; 1978-2003

Table A1: Rural Income				Table A2: Urban Income				Table A3: Various Indicators			
	(1)	(2)	(3)		(1)	(2)	(3)		(4)	(5)	(6)
1978	133.6	100.0	133.6	1978	343.4	100.0	343.4	1978	2.57	67.7	57.5
1980	191.3	139.0	185.7	1980	477.6	127.0	436.1	1980	2.35	61.8	56.9
1985	397.6	268.9	359.3	1985	739.1	160.4	550.8	1985	1.53	57.8	53.3
1986	423.8	277.6	370.9	1986	899.6	182.5	626.7	1986	1.69		
1987	462.6	292.0	390.1	1987	1,002.2	186.9	641.8	1987	1.65		
1988	544.9	310.7	415.1	1988	1,181.4	182.5	626.7	1988	1.51		
1989	601.5	305.7	408.4	1989	1,375.7	182.8	627.7	1989	1.54	54.8	54.5
1990	686.3	311.2	415.8	1990	1,510.2	198.1	680.3	1990	1.64	58.8	54.2
1991	708.6	317.4	424.0	1991	1,700.6	212.4	729.4	1991	1.72	57.6	53.8
1992	784.0	336.2	449.2	1992	2,026.6	232.9	799.8	1992	1.78	57.6	53.0
1993	921.6	346.9	463.5	1993	2,577.4	255.1	876.0	1993	1.89	58.1	50.3
1994	1,221.0	364.4	486.8	1994	3,496.2	276.8	950.5	1994	1.95	58.9	50.0
1995	1,577.7	383.7	512.6	1995	4,283.0	290.3	996.9	1995	1.94	58.6	50.1
1996	1,926.1	418.2	558.7	1996	4,838.9	301.6	1,035.7	1996	1.85	56.3	48.8
1997	2,090.1	437.4	584.4	1997	5,160.3	311.9	1,071.1	1997	1.83	55.1	46.6
1998	2,162.0	456.2	609.5	1998	5,425.1	329.9	1,132.9	1998	1.86	53.4	44.7
1999	2,210.3	473.5	632.6	1999	5,854.0	360.6	1,238.3	1999	1.96	52.6	42.1
2000	2,253.4	483.5	646.0	2000	6,280.0	383.7	1,317.6	2000	2.04	49.1	39.4
2001	2,366.4	503.8	673.1	2001	6,859.6	416.3	1,429.6	2001	2.12	47.7	38.2
2002	2,475.6	528.0	705.4	2002	7,702.8	472.1	1,621.2	2002	2.30	46.2	37.7
2003	2,622.2	550.7	735.7	2003	8,472.2	514.6	1,767.1	2003	2.40	45.6	37.0

Notes:

(1) Nominal Income at Current Prices, 1978-2001

(2) Real Income Index (1978=100)

(3) Real Income (1978 constant prices)

Columns (1) and (2) are from the China Statistical Yearbook, 2004, Table 10-2

Column (3) is calculated by multiplying the real income index (column 2) by the base year nominal income value.

(4) Urban-Rural Ratio of real income

(5) Engel Index for rural areas.

(6) Engel Index for urban areas.

Table A4: Per Capita Net (Disposable) Income of Rural and Urban Households, 2003

	Rural (1)	Urban (2)	Urban-Rural Ratio
National Average	2,622.2	8,472.2	3.2
Beijing	5,601.6	13,882.6	2.5
Tianjin	4,566.0	10,312.9	2.3
Hebei	2,853.4	7,239.1	2.5
Shanxi	2,299.2	7,005.0	3.0
Inner Mongolia	2,267.7	7,012.9	3.1
Liaoning	2,934.4	7,240.6	2.5
Jilin	2,530.4	7,005.2	2.8
Heilongjiang	2,508.9	6,678.9	2.7
Shanghai	6,653.9	14,867.5	2.2
Jiangsu	4,239.3	9,262.5	2.2
Zhejiang	5,389.0	13,179.5	2.4
Anhui	2,127.5	6,778.0	3.2
Fujian	3,733.9	9,999.5	2.7
Jiangxi	2,457.5	6,901.4	2.8
Shandong	3,150.5	8,399.9	2.7
Henan	2,235.7	6,926.1	3.1
Hubei	2,566.8	7,322.0	2.9
Hunan	2,532.9	7,674.2	3.0
Guangdong	4,054.6	12,380.4	3.1
Guangxi	2,094.5	7,785.0	3.7
Hainan	2,588.1	7,259.3	2.8
Chongqing	2,214.6	8,093.7	3.7
Sichuan	2,229.9	7,041.9	3.2
Guizhou	1,564.7	6,569.2	4.2
Yunnan	1,697.1	7,643.6	4.5
Tibet	1,690.8	8,765.5	5.2
Shaanxi	1,675.7	6,806.4	4.1
Gansu	1,673.1	6,657.2	4.0
Qinghai	1,794.1	6,745.3	3.8
Ningxia	2,043.3	6,530.5	3.2
Xinjiang	2,106.2	7,173.5	3.4

Notes:

(1) Per Capita Net Income of Rural Households (in Yuan)

(2) Per Capita Disposable Income of Urban Households (in Yuan)

Source: CSY, 2004, Table 10-21 and Table 10-15

