

Sustainable Rural Development

Abstract

This research is a follow-up activity to IIASA's European Rural Development (ERD) Project that was terminated at the end of 2002. Its aim is to continue *integrated* research on the demographic, economic, political and environmental dimensions of rural development, now focusing on lagging rural regions in China. The activity will also attempt to fulfill some of the obligations of the former ERD Project, in particular concerning ongoing efforts of ERD network partners to submit EU proposals. The activity will be carried out by Gerhard K. Heilig. The research will follow the approach of his previous work on "China's food security", which resulted in the publication of the ChinaFood CD-ROM and Web site (Heilig, 1997, 1999, 2002; Heilig *et al.*, 2000)¹.

Introduction

Regional disparities between *urban-industrial* centers and the vast, predominantly *rural* hinterland are a serious problem in China (Tian, 1999; Xu *et al.*, 1997)². The "economic miracle" of the past two decades was mainly generated by a small number of coastal provinces and special development zones in southern and eastern China (Fleisher *et al.*, 1997; Mody *et al.*, 1997; Wei, 2000)³. In these "hot spots" of development, environmental impacts are serious: rice-paddies are being transformed into industrial parks or residential areas; natural land is being sliced-up by new highways and railroads; and rivers and ponds are becoming increasingly contaminated by intensive agriculture, urban sewage systems and industrial waste water release. The cities and towns in the East and South are growing rapidly due to rural-urban migration – despite a strict household registration system, which should (in theory) keep farmers from interior provinces in their villages. Credible estimates have placed the number of temporary

¹ Heilig, G.K., 1997, Anthropogenic factors in land-use change in China, *Population and Development Review*, **23**(1): 139–168.

Heilig, G.K., 1999, *ChinaFood: Can China Feed Itself?* Electronic Publication on CD-ROM, International Institute for Applied Systems Analysis, Laxenburg, Austria.

Heilig, G.K., 2002, Multifunctionality of Landscapes and Ecosystem Services with Respect to Rural Development, Helming, K., Wiggering, H., (eds.), *Sustainable Development of Multifunctional Landscapes*, Springer Verlag, Berlin/New York.

Heilig, G.K., Fischer, G., van Velthuisen, H., 2000, Can China feed itself? An analysis of China's food prospects with special reference to water resources, in *The International Journal of Sustainable Development and World Ecology*, **7**: 153–172.

² Tian, Xiaowen, 1999, *China's Regional Economic Disparities Since 1978: Main trends and determinants*, Occasional Paper No. 21, East Asian Institute, National University of Singapore, Singapore.

Xu, Fengxian, Wang, Zhensong, 1997, The Issue of Regional Gap in China, in Xu, Min (ed.), *Twenty Seven Urgent Issues To Be Resolved in China*, Beijing (Today's China Press) 378–407.

³ Fleisher, B., and Chen, Jian, 1997, The Coast-Noncoast Income Gap: Productivity, and Regional Economic Policy in China, *Journal of Comparative Economics*, **25**(2): 220–236.

Mody, Ashoka, and Wang, Fang-Yi, 1997, Explaining Industrial Growth in Coastal China: Economic Reforms ... and What Else? *The World Bank Economic Review*, **11**(2): 293–325.

Wei, Yehua Dennis, 2000, *Regional Development in China – States, Globalization and Inequality*, Routledge (Routledge Studies on China in Transition 9).

rural-urban migrants (the so-called “floating population”) in the order of 80 million. None of the big cities, from Beijing to Shanghai could function properly without the huge “army” of unqualified migrant workers from the rural hinterland. These migrants work primarily in the urban construction industry, in waste collection, the transport industry, as well as in household services (Yao, 2001; Zhao, 2001)⁴.

The vast rural areas in the central and eastern parts of China, on the other hand, have seen little economic growth after the first wave of development in the early 1980s, when family farming was re-introduced after decades of centrally planned agricultural communes (Chen, *et al.* 1996)⁵. Today, small-scale agriculture and animal husbandry are still the dominating economic activities. Typically, each family has a plot in the range of only 0.25 to 0.55 hectares, which is far too small for competitive commercial agriculture (Lu, Wencong 2001)⁶. With agricultural modernization, however, a large number of farmers would lose their subsistence. It is estimated that China has an agricultural *excess* population in the order of 200 million people, most of them in the central and western parts of the country. No wonder that the great majority of China’s poor lives in these interior *rural* areas (Lu, Feng, 2001; Liu, 2001)⁷.

There is a consensus among experts that the gap between increasingly prosperous coastal provinces and stagnating interior regions has been widening in recent years, with great risks for the political stability of the nation (Bao, *et al.* 2001; Aziz, *et al.* 2001; Jian, *et al.* 1996)⁸. With its “Western Development” program in the latest five-year plan, the Chinese Government has acknowledged the seriousness of this internal development gap and implemented a scheme of massive infrastructure investments and other measures to balance it.

The research activity on sustainable rural development in China will seek to answer three basic questions:

(1) **What has been causing the widening disparity in the development of rural and urban-industrial areas in China during the last 20 years?**

To answer this question, the various dimensions of rural development need to be looked into. This includes demographic, economic, geographic, infrastructure-related, and political factors, which may all have contributed to the widening development gap (see: Démurger, 2001; Démurger, *et al.* 2002; Gallup, *et al.* 1999)⁹.

⁴ Yao, Yang, 2001, *Social Exclusion and Economic Discrimination: The Status of Migrants in China’s Coastal Rural Areas*, Working Paper Series No. E2001005, China Center for Economic Research, Peking University, Beijing.

Zhao, Yaohui, 2001, *The Role of Migrant Networks in Labor Migration: The Case of China.*, Working Paper Series No. 2001012, China Center for Economic Research, Peking University, Beijing.

⁵ Chen, Jian, Fleisher, B.M., 1996, Regional Income Inequality and Economic Growth in China, *Journal of Comparative Economics*, 22(2): 141-164.

⁶ Lu, Wencong, 2001, Chinese agriculture after the WTO accession: Competitiveness and policy, *Quarterly Journal of International Agriculture*, 40(3): 251–268.

⁷ Liu, Hui, 2001, *Poverty Stricken Areas and Poverty Relief, China’s Regional Disparities: Issues and politics*, Nova Science Publisher, Inc., New York.

Lu, Feng, 2001, *Poverty Reduction through Growth: China’s experiences*. Paper presented at the Regional Conference on National Poverty Reduction Strategies, organized by the World Bank and the United Nations Development Programme (UNDP), Hanoi, Vietnam, December 4–6, 2001.

⁸ Aziz, Jahangir, Duenwald, C., 2001, *China’s Provincial Growth Dynamics*, IMF Working Paper, WP/01/3, International Monetary Fund, Washington, DC.

Bao, Shuming, Chang, Gene Hsin, Sachs, J.D., Woo, Wing Thye, 2001, *Geographic Factors and China’s Regional Development Under Market Reforms, 1978–98*, Internal paper, April 24, 2001.

Jian, Tianlun, Sachs, J.D., Warner, A.M., 1996, *Trends in Regional Inequality in China. In: China Economic Review*, 7(1): 1–21.

⁹ Démurger, S., 2001, Infrastructure Development and Economic Growth: An Explanation for Regional Disparities in China? *Journal of Comparative Economics*, 29(1): 95–117.

- (2) **Which trends of rural development in China can we expect for the future?**
This question requires the elaboration of rural development scenarios, which include, among other things, demographic projections for rural-urban migration and an assessment of economic prospects in rural areas.
- (3) **What can the central and regional governments do to close the development gap between rural and urban-industrial areas?**
An answer to this question must not only take into account the development scenarios mentioned above, but also requires an analysis of specific development measures, targeted at rural areas. For instance, new ideas for rural development *outside* traditional agriculture and forestry need to be investigated.

Longer-Term Objectives

The overall long-term objectives of the research activity on sustainable rural development will be to:

- Analyze the underlying driving forces of regional divergences in the demographic, economic, socio-cultural, and environmental development of China by applying an integrative and truly multi-disciplinary framework.
- Develop a GIS and database with indicators that are specifically relevant for analyzing and projecting divergences between rural and urban-industrial areas in China. This GIS should assist decision makers and planners in formulating rural development policies at the regional and national levels.
- Initiate new visions for rural development in China by identifying innovative initiatives in lagging rural regions and by developing alternative development scenarios, which give special emphasis to options *outside* the traditional sectors of agriculture and forestry.
- Promote international cooperation in rural development research through the establishment of a network of research groups from Europe and China.
- Continue the existing Internet platform for research on rural development.

Proposed Activities in 2003 and Beyond

The research on sustainable rural development will focus on two tasks:

- (1) An analysis of *demographic, economic and other factors* that have contributed to the disparities between rural and urban-industrial areas of China, with special reference to the analysis of the rural population and rural-urban migration. For this research task collaboration with Chinese institutions has been initiated. This work will consume approximately 75 percent of the research effort.
- (2) The remaining 25 percent (initially) will be used to continue research obligations from the previous ERD Project, specifically participation in EU proposals, which are currently in their final stages of submission and which IIASA initiated or has promised contributions. This will include a minimum amount of networking activities.

Démurger, S., Sachs, J.D., Woo, Wing Thye, Bao, Shuming, Chang, Gene, and Mellinger, A., 2002, *Geography, Economic Policy, and Regional Development in China*, NBER Working Paper No. w8897, National Bureau of Economic Research.

Gallup, J.L., Sachs, J.D., Mellinger, A., 1999, Geography and Economic Development, *International Regional Science Review*, **22**(2): 179–232.

Research under task 1 above will focus on *causes* in the development disparities of China. Here, the following methodology will be used:

- A review of available literature on regional disparities in China, including research on demographic, economic, infrastructure-related, and political factors that have been suggested as causal for the widening development gap.
- An analysis of China's inter-provincial migration matrix (including, if available, inter-provincial in-and out-migration by age and sex) to determine the process of population redistribution between rural and urban areas.
- Cohort-component population projections by province or economic region (taking into account different scenarios for inter-provincial migration; in particular, taking into account migration from interior to coastal provinces);
- GIS-based *spatial analyses* of relationships between demographic characteristics (population density, population change, age structure, etc.) and economic or bio-geophysical indicators (regional GDP, GDP growth, altitude, distance to coast, distance to main highways, size of arable land, etc.).

Depending on the availability of appropriate data (in particular a full inter-provincial migration matrix from the 2000 population census and regional economic, and bio-geophysical datasets), it is anticipated that working papers, journal articles and a book manuscript can be produced by the end of 2005. Depending on the availability of data from the "floating population survey", it is anticipated that this manuscript will also include an analysis of the floating population and its impact on rural development in China.

Also planned is the participation in the submission of at least one (possibly two) EU proposal(s) concerning *human dimensions* research of rural development.

Collaboration

For the research on sustainable rural development in China, collaboration is foreseen with the following Chinese research centers.

- The Institute for Geographic Science and Natural Resources Research at the Chinese Academy of Sciences (Prof. Xiubin Li, Prof. Hui Liu);
- The China Center for Economic Research at Peking University (Prof. Feng Lu); and
- The Center for Agricultural and Rural Development (CARD) at Zhejiang University (Prof. Wencong Lu).

The joint submission of research proposals is under consideration.

The research activity will also – in a *limited way* – continue work with former collaborators of the ERD Project to fulfill existing obligations, such as in the joint submission of EU proposals. It specifically includes:

- Participation in the advisory board of the project on "Scenario Analysis Methodology" of the European Environment Agency (Dr. Hoogeveen, Dr. Henrichs, EEA, Copenhagen, Denmark);
- Participation in the steering committee and joint EU proposals of the "Landscape Tomorrow Network of Excellence" (Prof. Wiggering, Dr. Helming, ZALF, Germany);

- Participation in the steering committee of the approved EU PROLAND project of the Institute of Soil Science and Plant Cultivation in Pulawy, Poland (Prof. Maliszewska-Kordybach); and
- The joint submission of an EU proposal for the development of indicators for rural development research by the Land Management Unit of the Institute for Environment and Sustainability in the Joint Research Centers (JRC) of the European Commission (Dr. Folving, Ispra).