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Developing A Poverty Monitoring System at the County Level

Final Report on

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Final Report on Developing Poverty Monitoring System at County Level

1. Introduction

TA4454 (PRC): Developing Poverty Monitoring System at County level was approved by ADB in December 2004 and was under implementation from April 2005. The TA was designed to assist PRC poverty monitoring departments to develop a county poverty monitoring system that provides timely, relevant, and quality information useful for poverty-related analysis to support policy-making and decision-taking processes. One important task set for the TA is to develop a proto-type of a poverty monitoring system at county level to test the feasibility and replicability of the developed system.

Dayao in Chuxiong prefecture, Yunnan province was selected as the county to develop and test a proto-type of the proposed county level poverty monitoring system. Selecting Dayao to serve as the pilot county is due to the considerations of some key factors. Firstly, Dayao is an agriculture based remote county in which there is no large manufacture sector and no big cities to support the development, which is the typical feature for most poor counties in China. Secondly, Dayao is a nationally designated poor county with multiple constraints for poverty reduction. As a Yi autonomous county without rich resource endowment, Dayao is facing the constraints for poverty reduction in natural resources and human resources endowed. Yi and other minority ethnic people in Dayao account for one-thirds of its total population. It is believed that if the developed poverty monitoring system is feasible and workable, it can be replicated in other poor counties. Thirdly, the size of Dayao is suitable as the pilot county. Dayao has total population of 280,000, which are about 72% of the average size of national poor counties. Smaller size makes the pilot in the county be easier controlled and managed, and helps complete the designed tasks with the limited financial resources.

This report is to present the proposed county level poverty monitoring system design and its implementation in Dayao county based on the works undertaken for the TA after the Inception Workshop in April 2004. Some tentative analyses are made on the application of the developed poverty monitoring system to Dayao in policy making and planning making as well as in identification of the targeting groups for poverty reduction programs. Suggestions are made in future application of the developed poverty monitoring system.

The report is organized as following. Section two provides an evaluation of the existing poverty poverty/development related monitoring system based on the review of concerned documents and findings from field work in Dayao county. A brief overview of the evolution of poverty monitoring system in China, and evaluations of the indicators used, data collection, management and utilization, are presented in this section, too. Section three analyzes the needs for poverty monitoring and the gaps existed between the needs and the possible supplies of existing monitoring system. Section four introduces and discusses the proposed county level poverty monitoring system design and implementation arrangements, including overall strategy, institutional arrangement and indicators. The results of test survey of the proposed poverty monitoring in two villages in Dayao are tentatively analyzed. Section five reports the implementation of field survey in Dayao county. The replicabilities of the developed county level poverty monitoring system are discussed and analyzed in section six. Section seven makes conclusions and suggestions on the future application of the developed system.

2. Evaluation of the existing poverty /development related monitoring system in China

2.1 Overview of the Evolution of Poverty Monitoring System in China

China's poverty monitoring in a general sense was started in mid 1980's when the government launched its large-scale poverty reduction program. Before then the statistics on poverty related situations were mainly about administrative area based farmers' income and number of relief beneficiaries. The statistics of farmers' income was based on the reporting of administrative hierarchy starting from villages through the system of agricultural economic management under the Ministry of Agriculture before 1982. In 1981 the Ministry of Agriculture firstly published a report about the status on poor counties and poor villages (then production brigade) (Ministry of Agriculture, 1981). The task for farmers' income statistics has been officially transferred to the system of Rural Social and Economic Survey Team after 1982 though the system of agricultural economic management under the Ministry of Agriculture has been in operation up to date. The

statistics and monitoring of the number of relief beneficiaries by the ministry of Civil Affairs was started in early 1950's and continue into the present. The relatively formal poverty monitoring started after mid 1980's when the large-scale planned poverty reduction program initiated. The Leading Group Office for Poverty Alleviation and Development under the State Council (LGOP), in cooperation with the national RSO, has been in charge of the poverty monitoring of the state designated poor counties. The earliest monitoring data on almost all poor counties were available for 1992. It covered 21 indicators, including the per capita farmers' net income, per capita grain product, number of population by income classes, access to motorable roads, access to electricity, access to drinking water, etc. This system has been expanded and improved later and continues to be used up to present. In 1997 Chinese government developed an internationally comparable national wide poverty monitoring system in response to the increasing demands of the government for poverty monitoring, facilitated by the advocacy of the international organizations, and in particular, the implementation of the poverty monitoring component under the World Bank financed China Southwest Poverty Reduction Project and Qinba Mountain Poverty Reduction Projects. In addition, China has also developed department based monitoring system of some special dimensions of poverty, including monitoring of education and illiteracy, monitoring of maternal and infant mortality, monitoring of access to drinking water, etc.

2.2 Evaluation of the existing poverty monitoring system in China

Poverty monitoring system managed by the professional statistic department

It is legally regulated in China that only the data provided by the official statistic department are of legal status. The Rural Survey Organization (RSO) under the National Statistic Bureau supported by the RSOs at provincial and county levels has been designated as the supplier and manager of China's official poverty monitoring data and information by the government. Two systems work for poverty monitoring in the RSO. One is the Rural Household Survey System, which is responsible for supplying and managing the database regarding the resources owned, income and expenditure of national sample rural household. The Rural Household Survey System collects raw data from the daily record of all sample households on their income and expenditure and checked by village survey assistants and county statisticians. The data in this system are used to estimate the income and expenditure of farmers, the number of poor population and their change over time. The system has data on 68,000 sample households distributed in 857 sample counties of all 31 provinces. The database developed by the system is of high and reliable quality because the ways for sampling, data collection and checking, and management are quite scientific and in line with the statistics rules. It has been criticized in following areas. Firstly, the sampling is only of statistic significance for the national and provincial level in terms of the data used for estimating number of poor population. Therefore, it can not be directly used to estimate the poor population in the administrative districts below province. This limitation restricts the application of the system to the allocating resources based on the number of poor population in the regions below provinces. Secondly, few non income and expenditure indicators are covered by the system, which restricts the roles of the system in measuring and explaining other dimensions of poverty. Thirdly, the sampling may underrepresent the poor to some extent because successful participation of the survey demands literacy and numeracy ¹(World Bank, 1992).

Another system managed by the RSO is poor county based poverty monitoring system, which was firstly developed in 1997 and upgraded in 2002. This poverty monitoring system is operated in 592 nationally designated poor counties among which Dayao county is. The system composes of surveys and databases at four levels for all nationally designated Poverty Reduction Working counties² (NSB, 2003). (1) The poverty monitoring at county and provincial level has three types of indicators, including basic situations of poor counties, the sources and utilization of the poverty reduction funds, and the outcomes achieved in the reporting year. This section of survey is jointly managed by the LGOP, Ministry of Finance, National Development and Reform Committee, State Ethnic Affairs Committee, Agriculture Bank of China, and the RSO. The LGOP plays a larger role in data collection coordination. (2) Village poverty monitoring covers six types of indicators. They are: (a) basic situations such as locations, and access to physical infrastructure, (b) population, resources, and application of new technologies, (c) economic development, (d) health care and education, (e) disasters and social welfare, and (f) poverty reduction activities. (3) Household basic situations and household income and expenditure survey, including demographic characteristics, education, assets owned, living conditions, land and application of new technologies, lending and savings, participation in poverty reduction projects, income and its sources, productive

1 World Bank. 1992. *China: Strategy for Poverty Reduction in 1990's*.

2 Rural Survey Organization of National Bureau of Statistics. 2003. *China Rural Poverty Monitoring Report*. China Statistics Press.

expenses and living expenditure. (4) Individual survey, including basic characteristics, productive capacity and training of economically active population, employment and migration, schooling and drop off status of schooling age children.

The poverty monitoring system covers 54,000 sample households in 5400 sample villages of 592 poverty reduction working counties. The system adopts the sampling and data collection approach similar to rural household survey system, and therefore, is also of reliable quality. Compared with the rural household survey system, the poverty monitoring system covers more indicators beyond income and expenditure. But the system still involves other two drawbacks of the rural household survey system.

Regular statistics of rural development by the Statistic Bureau

It was found in the visited villages in Dayao that all administrative villages regularly report statistic data to county bureau of statistics via township statisticians. An incomplete counting of the report forms to be completed by villages in Sanchahe village of Sanchahe township and other villages shows that a village at least needs to complete 4 quarterly report forms and 9 yearly report forms (table 1). Totally there are 47 tables included in these statistic reporting forms. These statistic surveys from village level provide good statistic data bases for poverty monitoring. A large part of the basic information for poverty monitoring at village level can be directly taken from the regular reporting forms.

No.	Name of Statistic Report Form	Frequency of Reporting	
1	Livestock Production Situations	Quarterly	NBS*
2	Vegetable and Special Crop production Situations	Quarterly	NBS
3	Rural Private Investment Situations	Quarterly	PBS
4	Chuxiong Prefecture Rural Labor Mobility Situations	Quarterly	PRBS
5	Non-farmers' Livestock Situations	Yearly	NBS
6	Chuxiong Prefecture Rural Investment Situations	Yearly	PRBS
7	Areas and Outputs of Summer Crop Production	Yearly	NBS
8	Rural Basic Situations and Agricultural Productive Conditions	Yearly	NBS
9	Production Situations of major Agricultural Products	Yearly	NBS
10	Production Situations of Tea, Fruit and Silkworm	Yearly	NBS
11	Forestry Production Situations	Yearly	NBS
12	Cultivated Area Situations	Yearly	NBS
13	Collecting Wild Plants and Farmers' Run Commercialized Industrial Production	Yearly	PRBS

Note: * NBS: National Bureau of Statistics; PBS: Provincial Bureau of Statistics; PRBS: Prefecture Bureau of Statistics.

Poverty monitoring system developed by the Poverty Alleviation and Development Office

The poverty monitoring system developed and managed by the LGOP composes of poverty reduction intervention monitoring and poverty monitoring. The poverty reduction intervention monitoring system was under operation since middle 1990's. It is mainly designed to monitor the funds sources and utilizations of varied poverty reduction funds as well as the outputs achieved through the interventions. The data for the system are reported by the Poverty Alleviation and Development Office (PADO) in poor counties and summarized by prefecture and provinces. County PADO collected related information either from villages via township or from line government departments or the users of the poverty reduction funds. The poverty monitoring system managed by the LGOP composes of a monitoring of basic situations and poverty status in poor counties and key poverty villages, and a household income and expenditure survey of 10 sample households in one key poverty village in each key poverty reduction county. The data for county level poverty status are mainly from line departments while those for key villages and sample households are from village and household records. County and prefecture also estimate the change of number of poor population based on the planning of poverty reduction and the expected change of farmers' income growth.

The criticisms on the poverty monitoring system developed and managed by the LGOP focus on (1) all data for poverty reduction intervention monitoring are based on the reporting of lower level government and line departments, no sufficient human resources and quality control mechanism to ensure the quality of reported data. Dayao county PADO assigns one staff on part-time basis to take care of the statistic of poverty intervention and poverty monitoring. (2) Few data are available on the villages and household level. (3) The sample size of households is too small to make a reliable

estimation of the poverty status even for township and county level. (4) The estimation of poor population based on planning and subjective judgment of poverty reduction is not reliable and usually overestimation of the achievement in poverty reduction (Park and Wang, 2001).

Poverty Monitoring by Relevant Line Departments

The poverty reduction in most areas of non-income dimensions in China is taken care by relevant line departments. Accordingly, the monitoring of the poverty reduction in the areas of non-income dimensions is being responsible for by varied line departments.

- (1) Monitoring of schooling of 6-15 years old children and adult illiteracy by the department of Education. The monitoring of Education Department at county level is based on the reporting from village schools via township central schools. Most villages have village schools. Village schools are not only responsible for education of students but also in charge of the statistics of schooling age children with the assistance of villagers' committee and of the students' registration and status of students. Normally village schools are able to monitor the schooling or drop off of schooling age children because China has established national wide family planning management information system and household registration system. There are some cases where the drop-off of schooling children can be missed in the monitoring. The schooling situation of schooling age children may not be rightly and timely recorded if their families migrated out of the home county. No effective ways work on the tracking the schooling in this case. When no school is located in the villages, in particular in the remote villages, the existing ways for monitoring of schooling of schooling age children is more difficult and easily incurs missing of some of drop off children. It is also found in Dayao that the data management system developed by the Ministry of Education does not work friendly. In addition, village schools are also responsible for the statistics of adult illiteracy. But it is found from Dayao that the statistics of adult illiterate persons is only monitoring the reduction of recorded numbers of illiterate persons. No matter whether the reduced illiterate persons have really been literate after passing the exams for eliminating illiteracy, they are taken as literate population forever.
- (2) Monitoring of infant and maternal mortality and child health development as well as the incidence of varied diseases by the department of Health Care. The monitoring of children and women's development status was started in 1996 when the government put forward the Women and Children Development Program (1996-2000). The program was updated in 2001 for 2001-2005. It is found in Dayao that a comprehensive monitoring system of women and children health development has been in place and functioned well. The situations in the villages on birth, health development and mortality of infants and under-five children is recorded and reported to township hospital by village doctors monthly. The statistics of children and women's health development in Dayao is found to be highly reliable in terms of data source and control. The documents of all pregnant women in the villages are started from their gestational periods and cross checked by both village doctors and family planning assistants in the villages. These documents are reported to township hospital and township government family planning office. Follow-up reports of each pregnant woman are reported monthly and quarterly. The records of infants health development are usually taken when the infants were born or within one week after the birth and reported monthly. The data of children and women's health development status are summarized in township and reported to county. County Maternity and Child Care Center under county department of Health Care revisits and checks the reports on children and women's health care regularly (usually quarterly). In addition it was observed in the visited townships that official agreements had been signed between township governments and township hospitals on the control of incidences of infant mortality and maternal mortality.
- (3) Monitoring of safety drinking water supply by the department of Water Resources. The monitoring of drinking water supply had been internally and area based. Every year the Water Conservation Stations that are allocated by water systems report the drinking water supply situations to county department of Water Resources. But no effective mechanism can ensure the reliability of the reported data. Dayao county Water Resource Bureau organized a census of drinking water supply from last 2004. The census investigated the access of households and communities to drinking water and the quality of the supplied water in detail.
- (4) Monitoring of the relief's beneficiaries and disasters' loss by the department of Civil Affairs. The monitoring of the department of Civil Affairs of the number of extreme poverty that are roughly defined as lacking minimum food to feed the people and disaster's losses is of a long history in China. It takes uses of the reporting system

through the administrative hierarchy from village up to the central to collect the information. The statistics of the extreme poor usually is undertaken at the end of year or before Chinese spring festival. The reporting of disaster's losses is made after a disaster occurred. There are also monthly and quarterly reporting system arranged in the monitoring of civil affairs.

- (5) Monitoring of the allocation and utilization of budgetary funds for poverty reduction by the Department of Finance. The Management Information system of budgetary funds for poverty alleviation developed by the ministry of Finance is still in test stage in three provinces, Xinjiang, Jiangxi and Hebei from 2004. Up to date the monitoring system has not yet been applied to Dayao.
- (6) Monitoring of the implementation of Food for Work projects by the Development and Planning Committee. County Development Planning Committee presents quarterly and yearly report of the utilization and distribution of the Food for Work funds. It collects data from other line departments and project construction units.

Data Processing, utilization and sharing

All data collected in villages are transited to townships in paper format. All the data for departments rather than statistic bureau are also reported to concerned departments at county in paper format after summarizing in townships. The data from the townships sometimes are provided by fax or by phone, which makes some figures in the report forms hardly recognized and saved properly. The data cannot be processed and maintained easily and conveniently either. In Dayao PADO, the statistician even could not find the reporting forms of some townships in 2004 in the office. It is found in Dayao that few of the data collected from villages are processed and analyzed locally. The summarized data are directly reported to above government departments.

The data collected by the statistic bureau in about half of the all townships on villages are entered in townships and reported to county in electronic format. But only the data in two townships are transferred via email or electronic system. All the data on households are reported to county in paper format and entered by county statisticians. County statistic bureau send all the data on both villages and households to prefecture bureau of statistics and provincial bureau of statistics in electronic format. Similar to the data managed by other departments, most of the data managed by county statistic bureau have not been processed and analyzed.

Our discussions with officers at villages, townships and county found that most data collected by varied departments had not been utilized sufficiently. Villages seem only to be the suppliers of most raw data. They rarely utilize the collected data for villages' affairs. The data in villages are mainly used by village leaders as the bases for introducing local situations to outsiders, in particular upper government officers. Even in the key poverty villages, these data were seldom used in formulating the villagers' participatory development planning. At township level, we found the data reported by villages were mainly used to write annual summary reports. Some key information was also reported to township People's Congress in its annual meeting. The data for professional areas are informed of township leaders in charge. For example, the information on education is also reported to township government deputy head or vice Party secretary in charge of education except for reporting to the county education bureau. At county level, the data reported by townships are utilized in more areas. Except for the cases as in townships, the data are also used in decision making of the county government. But concerned line government departments also scarcely utilize the collected data for decision making in their professional areas. For instance, the Dayao PADO allocated the budgetary funds for poverty reduction mainly on basis of township's application and village poverty alleviation and development planning. It seldom directly used the data from townships and villages in fund allocation. Relatively, county government, mainly the Development and Planning Bureau, does use the data in planning making.

The department based data collection and management system is partly the result of recent government administration structure which is vertically arranged by departments. The system was designed to serve for concerned department's needs for planning, monitoring and evaluation of policies and project management. The data sharing among departments is limited and only confined to the summarized figures. For instance, Dayao PADO directly used the figure on adult illiteracy from the Bureau of Education and the data on the number of villages and households inaccessible to drinking water from the Bureau of Water Resources in its yearly poverty alleviation report. In most cases, other government departments tend to use the data produced by the Statistic Bureau which is the mere legal organization to issue official data.

2.3 Assessing the Capacities for Poverty Monitoring in Dayao

The development of a county level poverty monitoring system may also depend on the capacities of local organizations in supplying and processing data for poverty monitoring except for the demands for poverty monitoring. The capacities of local data supplies include human resources, financing capacities, and equipments owned.

County statistic bureau. There are about 20 staffs in Dayao county Statistic Bureau. Four staffs work on the statistics of agriculture and poverty monitoring. Most of the staffs in the bureau attained education in technical school or university. Only a small part of them had education in statistics. It is observed from working with the staffs of the bureau in the last three months that most of them have the capacity of ordinary statisticians in data collection, checking and entry, and basic application of computer software. A part of them can make general statistic analyses. Their knowledge of and skills in statistics and computer application were mainly obtained from learning by doing and training attained from prefecture statistic bureau in forms of meeting. They lack opportunities to accept professional training in statistics and computer application. They need to be trained in more professional ways if they are required to play larger roles in analyses of the data for poverty monitoring.

The county statistic bureau has been equipped with a computer every staff though some of the computers they have are outdated. Some computers are connected to internet and therefore they are able to transfer data via email or internal statistic internet. The bureau has a jeep. As a government department, the bureau is financed from government budget for their staff's salaries and a small amount of operation fees. The operation fees are insufficient if the staffs visit villages frequently.

Other county departments. In all poverty and development related county bureaus in Dayao, there is one special staff working on statistic matters in full time or part time. Most of the statisticians in other county departments have not attained professional education on statistics. Their knowledge of and skills in statistics are mainly from short term training from prefecture or provincial concerned line departments. Their major statistic activities are to collect data from townships, concerned organizations, make summary of the collected data and report the summarized data to prefecture line departments. Very few of them can make statistic analyses of the collected data using statistics methods and skills. The statisticians in these departments have used computers in data processing.

Township government. Every township has a statistician. Some of them only work as statisticians on part time basis. It is learned that township statisticians usually spend about 50% of their time on statistical assignments. Most township statisticians usually have attained education in technical schools. Some attained education in universities. They obtained their knowledge and skills of statistics mainly from the training by county statistic bureau. A key issue for township statistic works is the high mobility of the statisticians because their relative lower position in the township government. Few township statisticians can work in the position more than five years. The statisticians in eight out of fourteen townships are equipped with computers. But computers in townships play roles only in summarizing data reported by villages. Only statisticians in two townships transfer data via internet.

Villages. The statistic works at villages usually are taken by the village committee secretaries who are paid some amount of salaries by the government while they are also farmers in the villages. They spent about 40% of the time in statistic works in a year. Most village statisticians have attained education in senior high school. Their knowledge and skills of statistics are mainly obtained from training in forms of meeting in township government. Village statisticians use simple calculators or abacus for data processing. The management and keeping of completed reporting forms are not good because of change of village cadres and no places for saving the files. The services of village committee officers, including the secretary, are paid by the government now. A secretary has monthly salary of about RMB340.

3. Needs Assessment and Data Gap

China's poverty reduction has stepped into a new stage after year 2000. The incidence of rural poverty by the official poverty standard declined to 3.5% in 2000. The number of rural poor population then declined to 32.09 million (NBS, 2001). The rural poverty in the new stage in PRC has three striking features. One is the remained poor population is distributed more scatter in the countryside. County is no longer the suitable target for poverty reduction interventions

(World Bank, 2001). Most poor population is concentrated in some communities. Quite a large part of the remained poor households are constrained by lacking productive capacities, such as the disabled, the sick, and those who live in the areas without sufficient cultivated lands (ADB, 2004). Individual or household targeting poverty intervention is more effective for these poor households. The second one is the non-income dimensions of rural poverty have become the new challenge and major concerns for rural poverty reduction. More attention was drawn to the physical and social infrastructure and capacity building in poor communities. The third one is that the vulnerable and low income group has emerged as a more threatening force for poverty reduction. The returning of the population in the low income group to poverty has become the primary source of new poor population. In order to address the new poverty after year 2000, Chinese government put forward a new rural poverty reduction program³ over 2001-2010. The implementation of the new program generates new needs for poverty monitoring, in particular for the poverty monitoring at/below county level. More demands also emerged for the monitoring non-income dimensions of rural poverty.

The discussions and consultations with stakeholders in Dayao county and Kunming, the capital of Yunnan province, learned that the major demands of the government for poverty monitoring system are in following areas. (1) Timely and regular reliable data of the poverty status of villages and households are needed for targeting the poor villages and beneficiary households rightly and for allocating resources reasonably. Existing poverty monitoring can only provide the data on poverty status up to province level, are not able to meet the needs for identifying poor villages and poor households from thousands of villages and households in a more objective way. Lacking available data at household and village level also makes the planning making about resource allocation only rely with the applications from township governments, which restricts the planning about poverty reduction planning in matching the real needs of poverty reduction. (2) Timely and regular data of the progress made in poverty reduction are needed for monitoring and evaluating the effectiveness of poverty reduction projects. Lacking the data available also confined the evaluation of effectiveness of the poverty reduction projects to some simple estimation based on the reported data from project implementation. (3) Timely and regular data for the indicators beyond income and expenditure are needed for complete monitoring of poverty and for evaluation of the outcomes of poverty reduction interventions. The application of tangible outcome indicators has not been completely accepted in the evaluation of the effectiveness of government's poverty reduction projects because of lacking necessary checking procedure of the data. (4) The data for the needs of poor households and poor villages are seriously lacking in existing poverty monitoring system. It is impossible to identify what are the most needed in villages and households with the existing poverty monitoring system in operation.

The existing poverty monitoring system, however, as described in the prior section, cannot provide necessary information support for the new poverty reduction interventions. The intensive discussions with the officers in Dayao at village level, township level and county level show there exists large data gaps in the poverty monitoring. Mainly, there are five gaps existing between the recent poverty monitoring system and the needs of poverty reduction interventions.

- (1) Existing data concerned poverty monitoring are not effectively and properly shared among related departments. As discussed in the prior section, most of the poverty related information actually is available and occupied by varied departments. Most of the produced data have been only reported to and used by corresponding departments. No effective mechanisms and institutional arrangement have been made in data sharing. Data collecting departments, in particular those administrative departments, lack incentives to share data with other departments. Some departments also worry about the risks incurred by opening of the internal information to public or other departments. As long as all the concerned departments can reach consensus on data sharing and management and the central government can make a necessary institutional arrangement for the management and coordination of poverty monitoring data, it is not very difficult to build a shared poverty monitoring database in a not very long period.
- (2) The quality of the data produced from existing poverty monitoring system needs to be improved to meet the needs of decision making and planning making and of timely monitoring of poverty. It is found in Dayao that a part of the data produced by villages and departments were not based on clear and consistent definitions. Different data collectors might have different understanding of the definition of indicators, which makes the sum and classification of the data senseless. Most of the data collected by village committee and departments had not been checked by qualified staffs.

3 PRC government issued the *China Rural Poverty Alleviation and Development Outline (2001-2010)* in 2001.

- (3) No sufficient data at village level and household level have been provided regularly and timely for planning making and decision making. The downward moving of poverty reduction targeting from counties to villages and households raises more demands for the data at village level and household level. The existing data for poverty at village and household level cannot meet the needs of planning making in resource allocation and of monitoring the effectiveness of poverty reduction interventions. For example, Yunnan PADO planned to identify the poor villages based on 9 indicators⁴ at villages in 2000. However, most of the data at village level were not available. The monitoring of village targeting poverty reduction projects now is based on very limited sample village survey, which influenced right selection of real poor villages.
- (4) Some important non-income indicators have not been included in the regular monitoring of poverty in the recent system. For example, infant mortality and maternal mortality are good indicators for measuring the quality of living and human development. Actually they are also available in existing department monitoring system. But these two indicators have not been included in the regular poverty monitoring indicator system.
- (5) The collected data were not managed and processed well. For example, the local PADO had once organized a complete survey of poor and low income household (jian dang li ka). But the office cannot provide any data in electronic forms or the data about each village or township when asked to show the results of the survey.

4. Proposed Poverty Monitoring System at County Level

4.1 Rational for poverty monitoring system development

The developed poverty monitoring system at county level needs to abide by some fundamental principles.

- (i) The system should be able to meet the needs of planning making and decision making for regularly and timely information of poverty status. Recently there are three key demands for the poverty monitoring system in China. One is for identifying the target poor households and poor villages. With the change of poverty reduction intervention target from county based to village and households based, how to effectively and economically identify the target poor households and villages has become an urgent and immediate task for poverty monitoring. The second one is for identifying the most needed areas for poverty reduction intervention and for allocating resources rightly. The timely and reliable information on varied development areas in the poor areas is very important for making right decision on resource allocation and planning making. The third one is for monitoring and evaluating the effectiveness of resources input and of poverty reduction interventions.
- (ii) The developed indicators should be of comparability with other development concerned monitoring indicators. Firstly, the developed indicators should be in line with the Millennium Development Goals and be of internationally comparability. It requires the developed system be able to capture the whole picture of poverty and varied dimensions of poverty. Secondly, the developed indicators should be consistence with the indicators developed for measuring well off society in China. Thirdly, the developed system should be in line with the national poverty monitoring system in the major aspects.
- (iii) The developed system should be technically feasible. It requires the developed poverty monitoring system can be of methodologically scientific and of technically workable. The developed indicators and the ways proposed for collecting data can ensure reliability of collected data and possibility of data collection.
- (iv) The developed system should be economically sustainable and operationally replicable. It requires the developed system can be applied in a sustained way with affordable costs.

⁴ Including per capita output of grain, per capita cash income, proportion of dangerous and grass made houses, percentage of population and cattle inaccessible to drinking water, proportion of communities connecting to electricity, percentage of communities access to motorable roads, incidence of local diseases, drop off rate of schooling aged children, and the percentage of population with per capita income below 625 yuan.

4.2 Overall strategy for developing poverty monitoring at county level

There are three selective issues need to be addressed when developing poverty monitoring system at county level. One is the scope covered by the monitoring system, i.e., the needed data are gathered through sample survey or complete survey. The second one is the selection of the indicators included in the monitoring system. A hard decision in this regard is whether income and/or expenditure need to be included. The third one is if the primary indicators included in the monitoring system are objective or subjective, or quantitative or qualitative. The answers to the three issues can decide the overall strategy adopted for developing poverty monitoring system to a large extent.

Sample survey is important for measuring and monitoring income or expenditure based poverty when income and expenditure are still used as the bases for measuring poverty. But sample survey of household income and expenditure, unless the sample size is equal to or close to the number of overall households, cannot be used to identify the target households, even the target villages precisely. A possible solution is to combine sample surveys of households' income and expenditure as did at present with a complete survey of well designed indicators at village level and household level. The complete survey of agricultural production, population and other socio-economic situations at village level in China has been a popularly used way for collecting information in rural areas since late 1950's. China also has the advantages in its well developed administrative system to collect information from village level. Key problems existed in the village reporting system are in two areas. One is all data at village level are summarized in township and upper governments, cannot be maintained and processed by village. Another is the data collected by villages are not checked and evaluated by qualified persons. These two issues can be addressed by strengthening capacities of village and township statisticians. One-time complete survey at household level is possible as long as it has a reasonable design. The complete survey at household level requires: (1) the proposed indicators can be easily collected and identified as visible as possible, (2) the time spent on collecting needed information for each household should be short and flexible, and (3) the designed survey has no negative effects on the households' interest.

Income and/or expenditure are broadly used to measure poverty internationally. Income is also the only official indicator for measuring and monitoring poverty incidence in China. However, the precise calculation of household income and expenditure requires many reliable data on household production and living. Only daily records of income and expenditure can provide reliable data bases. Monitoring the income and expenditure of all households is unrealistic and uneconomic. One-time survey of household income and expenditure, no matter how the survey is organized, cannot obtain complete and reliable information needed for calculating income and expenditure because it can only rely on the recall of interviewees. Completely forsaking income indicator in the county level poverty monitoring system may have profound influence on the official understanding and measurement of poverty. It is not easy to change the definition and measurement of poverty that has been used for a long time. Except for continuing household income and expenditure sample survey, a rational option is to use income and expenditure proxy indicators for which data can be easily collected to predict the level of income and expenditure. Therefore, county poverty monitoring system should cover welfare or development related indicators beyond income and expenditure, and those income and expenditure proxy indicators.

Subjective indicators on poverty are useful for the impact assessments of the policies and projects for poverty reduction. But the applications of subjective indicators may bring about the issues of objectivity and comparability if the poverty monitoring system at county level is applied to more than one county. It is rational to use objective indicators to constitute comparable county poverty monitoring system. Subjective indicator survey and participatory monitoring can be applied to community level and to checking the reliability and quality of objective or quantitative indicators when needed.

4.3 Proposed Indicators for the County Poverty Monitoring System

Selection of indicators is to choose a package of indicators to meet the needs for poverty monitoring at county level. Two fundamental principles need to be considered among others when selecting indicators. One is the proposed package of indicators being able to describe and identify the status or picture of households and villages in poverty and development when all indicators combined. Another is that the data for constructing the indicators can be collected precisely and economically.

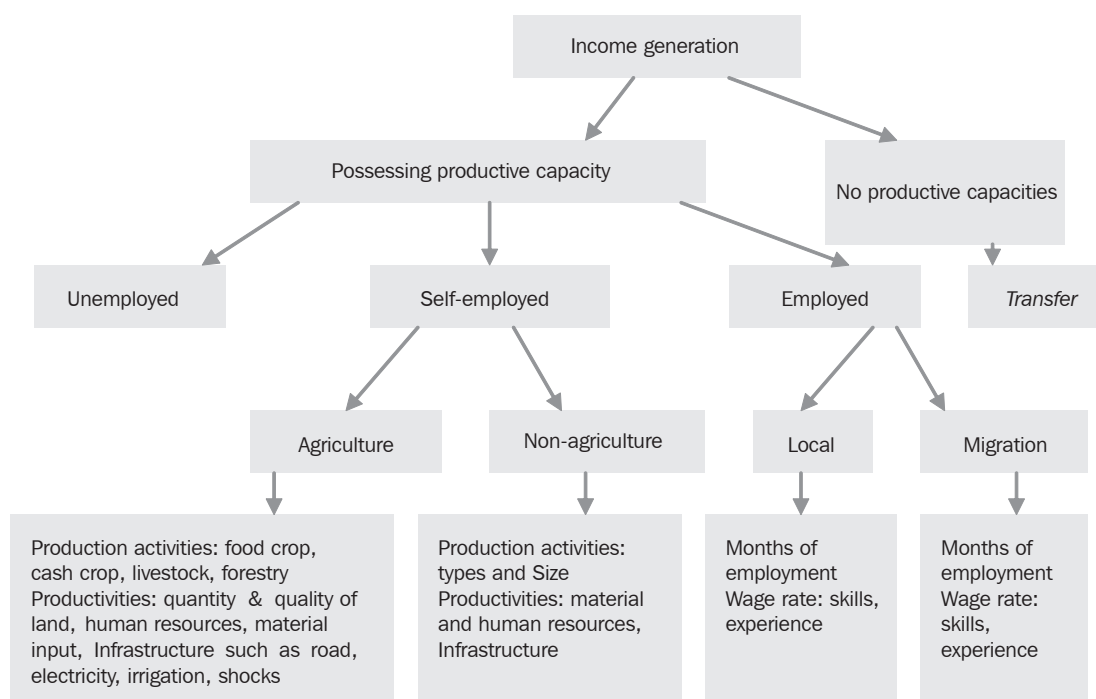
According to the needs of local governments for poverty monitoring and for decision making in poverty reduction and the multiple dimensions of poverty as well as other considerations discussed in the prior section, poverty monitoring indicators should at least include three categories of indicators: (1) income or income proxy indicators; (2) non-income poverty indicators; and (3) indicators for outcomes of poverty reduction interventions. Three approaches have been tried in this TA to develop a set of indicators as reasonable and workable as possible. One is to select poverty indicators based on theoretical considerations and international and national experiences in poverty monitoring indicators development. Second one is to have a participatory ranking of the importance of some selected indicators by concerned local officers in Dayao county. Third one is to make regression analyses using Yunnan provincial poverty monitoring database to see the statistical significance of selected indicators in predicating income and consumption expenditure, which are used as key indicators for poverty measurement in China and other countries.

Type of Indicators Selected Based on Theoretical Considerations and Poverty Monitoring Practices

1. Income or income proxy indicators

As discussed in the strategy proposed for developing county poverty monitoring system in the prior section, income proxy indicators would be used to replace usually used income indicator. Income generation is the function of many related factors. When ignoring the roles of income transfer and income gained from previously accumulated assets, income of a household at one certain time can be explained by the framework in the chart 1.

Chart 1 **Income Generation Explanation**



The income related indicators, therefore, should cover those on (1) labor's productive capacity; (2) employment in off-farm sector and migration, months of the employment and wage rate; (3) self employed in non-agricultural sectors, productivities and size; (4) self employed agriculture, quantity and quality of land, production activities, productivities and natural disaster shocks. It is difficult to obtain the reliable information on the productivities by households and by sector, and on the wage rate gained by each employed labor when rapid interview approach is adopted. The exclusion of these indicators will naturally lead to bias of the estimated income against the real income because of ignoring the difference in productivities and wage rate aroused by the difference in material input and experience among households.

2. Non income poverty indicators

Non income poverty or human development deprivation indicators (UNDP, 1997), as adopted in China and developing organizations, can cover indicators in the areas of (1) survival; (2) deprivation of education opportunities; (3) water and sanitation; (4) basic health care; (5) housing and durables owned; (6) gender development.

3. Poverty reduction outcome indicators

The indicators on the outcome generated by poverty reduction interventions would include the indicators on (1) type of poverty reduction interventions; (2) coverage of the intervention and number of beneficiaries; (3) tangible outputs generated by the interventions.

Ranking the Importance of Indicators by Local Officers

In order to learn the importance of the proposed indicators which have been used in the national poverty monitoring by concerned local officers, one exercise was done to rank the importance of indicators by 9 county department officers. The results are presented in following table. It is found that the perceptions of the importance of the proposed indicators among the participating departments are varied because of the different concerns from different departments. There are only four indicators among the proposed 47 indicators that had been agreed by over a half of the participating departments, which showed the multiple nature of poverty perceived by different departments.

Indicators at the Village Level	Score	Indicators at the Household Level	Score
Cash income per year per person	4.67	Household health status	4.67
Access to drinking water for human beings	4.67	Amount of cultivated land per capita	4.44
Grain production per capita (kg per year)	4.56	% of output sold in the market	4.22
Land productivity	4.44	Education level of household head	4.22
Amount of cultivated land per household	4.44	Presence of disabled members in the household	4.22
Number of natural disasters in previous 3 years	4.44	Livestock ownership (buffalos, goats, pigs etc.)	4.11
Access to drinking water for animals	4.43	Household has reliable electricity	4.11
Number of months of food insufficiency per year	4.33	Quality of housing	4.06
School drop out	4.33	Household members employed only in agriculture	3.89
Cost of agricultural inputs	4.33	Agriculture production assets	3.89
Education cost	4.25	Household has TV	3.67
Number of different types of natural disaster	4.00	Number of days of wage work	3.56
Annual rainfall	4.00	Household head speaks Chinese	3.56
% of births attended by skilled personnel	4.00	Number of crops grown	3.44
Presence of active micro-enterprise in the village	3.89	Toilet type	3.44
Availability of all-weather road (from village to town)	3.89	Household has telephone	3.33
Access to health facilities	3.78	Female headed households	2.78
Slope and altitude of village	3.78	% of 1 year old children immunized against measles	3.33
Distance to nearest market	3.61	Literacy by gender	3.22
Minority participation in governance	3.56	% of households from minority groups	3.11
Access to primary school	3.56	Crime incidence	3.00
Access to middle school	3.56	Primary enrollment by gender	2.89
Female participation in governance	3.44	Number of active community groups	2.78
% of underweight children under 5	3.33		

1 The data listed in the table is based on the results of questionnaire survey conducted by international consultant, Mr. Ludovico Carraro.

Note: The score is obtained from an average of 9 different assessments.

Regression Analyses

OLS regression analyses have been made to see the statistic relation between the proposed poverty monitoring indicators and income/expenditure per capita. The data used for regression are the database for poverty monitoring sample survey in Yunnan in 2004. It has 7800 sample households distributed in all poor counties. The variable description is presented in the annex. Before OLS regression, correlation matrix analyses had been undertaken to see the correlation among variable. STEPWISE has been conducted to improve the results of the regression. No significant difference was found between the results of OLS and those of STEPWISE. Presented below are the results of OLS for per capita net income and per capita living consumption expenditure.

Table 3 Results of OLS Regression for Income Per Capita

Variable	Parameter	Standard Error	T value	Pr > t
Intercept	2.73384	0.03977	68.74	<.0001
hilly or mountainous	-0.03313	0.00808	-4.1	<.0001
Living in the village with clinic or doctor	-0.01647	0.00969	-1.7	0.0893
Living in the village with primary school	0.01031	0.0049	2.1	0.0354
distance to bus station (log)	-0.00797	0.00246	-3.25	0.0012
distance to nearest market (log)	0.01155	0.00256	4.52	<.0001
Grain output loss made by natural disaster more than 50%	0.03152	0.00849	3.71	0.0002
% below 6 Children	-0.15515	0.01902	-8.16	<.0001
% population speaking Mandarin	0.08985	0.01215	7.4	<.0001
% physical healthy population	-0.03183	0.01509	-2.11	0.035
% population capable of seeing doctor in case of sickness	0.04468	0.00587	7.61	<.0001
labor population ratio	0.01503	0.00377	3.99	<.0001
% labors engaged in agriculture over 6 months	-0.00161	0.00871	-0.19	0.853
% labors engaged in non-agricultural activities over 6 months	0.21304	0.02089	10.2	<.0001
% labors migrated over 6 months	-0.16246	0.02475	-6.56	<.0001
household with over 2 children	-0.02398	0.00752	-3.19	0.0014
household of three generations	0.01058	0.00616	1.72	0.0861
Building or buying a new house	0.11068	0.01007	10.99	<.0001
Marriage or funeral	0.04709	0.01181	3.99	<.0001
having members studying in university or technical school	0.17969	0.01635	10.99	<.0001
hospitalization	0.03479	0.01398	2.49	0.0129
Owned house is made of concrete	0.05793	0.00987	5.87	<.0001
per capita draught animals in stock (log)	-0.00019698	0.00303	-0.07	0.9482
per capita pigs in stock (log)	0.02768	0.00386	7.18	<.0001
per capita sheep or goats in stock (log)	0.00053655	0.00319	0.17	0.8665
Own a color TV	0.06247	0.00519	12.04	<.0001
Own a motor bicycle	0.10857	0.00972	11.17	<.0001
Own a truck or tractor	0.06301	0.01038	6.07	<.0001
own toilet	0.0144	0.00533	2.7	0.007
connected to electricity grid	0.03817	0.01216	3.14	0.0017
difficult in fetching water	0.00011757	0.00582	0.02	0.9839
using firewood as fuel	-0.00892	0.00598	-1.49	0.1362
per capita cultivated land areas (log)	0.02521	0.00936	2.69	0.0071
% cultivated land under irrigation	0.01166	0.00761	1.53	0.1255
% cash crop areas in total sown areas	0.17587	0.01526	11.52	<.0001
accessible to credit	0.06015	0.00822	7.31	<.0001
grain output (log)	0.13332	0.01002	13.3	<.0001
% sold grain	0.03458	0.01168	2.96	0.0031
household population (log)	0.40436	0.05552	7.28	<.0001
square household population (log)	-0.30322	0.02904	-10.44	<.0001
% labor with highest education in junior high school or above	0.03872	0.00484	7.99	<.0001
Root MSE	0.19393	R-Square	0.3310	
Dependent Mean	3.02756	Adj R-Sq	0.3276	
Coeff Var	6.40553			

Most of the selected indicators in the regression show the signs as expected and are of statistics significance at level 0.01 or 0.05. The % labors migrated over 6 months shows the opposite sign as expected. It is mainly because quite a large part of the migrants then were unable to get their due wages on time.

Proposed Indicators for Poverty Monitoring at County Level

A household questionnaire and a village survey form have been developed based on participatory ranking, theoretical analyses and the indicators used in the national poverty monitoring. The indicators included in the household questionnaire cover (1) demographic characteristics, such as family size, age composition, health status, (2) education and skills, such as the highest education attained in the household, number of illiterate persons, drop out of schooling age children, (3) working capacities of household members, (4) land and location, including land areas and irrigation, distance from village committee, (5) social insurance participated and benefited by the interviewed household, (6) employment including self-employment and migration, (7) cropping structure, (8) livestock, (9) housing and durables, including type and time of housing, TV set, electrical appliance, transport facilities, (10) amenities, such as toilet, drinking water, fuels, (11) major events occurred, such wedding, funeral, hospitalization, children going to universities, and (12) subsidies and other supports received from the government.

Table 4 Results of OLS Regression for Living Consumption Expenditure

Variable	Parameter	Standard Error	T value	Pr > t
Intercept	2.34238	0.05164	45.36	<.0001
hilly or mountainous	-0.03024	0.01048	-2.88	0.0039
Living in the village with clinic or doctor	0.03345	0.01258	2.66	0.0079
Living in the village with primary school	0.02456	0.00636	3.86	0.0001
distance to bus station (log)	-0.00876	0.00319	-2.75	0.0060
distance to nearest market (log)	0.01059	0.00332	3.19	0.0014
Grain output loss made by natural disaster more than 50%	0.03366	0.01102	3.05	0.0023
% below 6 Children	-0.11143	0.02470	-4.51	<.0001
% population speaking Mandarin	0.10172	0.01577	6.45	<.0001
% physical healthy population	0.02901	0.01960	1.48	0.1388
% population capable of seeing doctor in case of sickness	0.05501	0.00762	7.22	<.0001
labor population ratio	-0.00387	0.00490	-0.79	0.4295
% labors engaged in agriculture over 6 months	-0.01419	0.01131	-1.26	0.2094
% labors engaged in non-agricultural activities over 6 months	0.17198	0.02712	6.34	<.0001
% labors migrated over 6 months	-0.10688	0.03214	-3.33	0.0009
household with over 2 children	-0.02201	0.00977	-2.25	0.0243
household of three generations	0.02726	0.00800	3.41	0.0007
Building or buying a new house	0.05230	0.01307	4.00	<.0001
Marriage or funeral	0.03120	0.01534	2.03	0.0420
having members studying in university or technical school	0.10240	0.02123	4.82	<.0001
hospitalization	0.01881	0.01815	1.04	0.3002
Owned house is made of concrete	0.06261	0.01281	4.89	<.0001
per capita draught animals in stock (log)	-0.00022951	0.00393	-0.06	0.9535
per capita pigs in stock (log)	0.01576	0.00501	3.15	0.0016
per capita sheep or goats in stock (log)	0.02859	0.00414	6.90	<.0001
Own a color TV	0.05629	0.00674	8.35	<.0001
Own a motor bicycle	0.10586	0.01262	8.39	<.0001
Own a truck or tractor	0.07060	0.01348	5.24	<.0001
own toilet	0.01780	0.00692	2.57	0.0102
connected to electricity grid	0.01487	0.01579	0.94	0.3462
difficult in fetching water	0.02791	0.00755	3.69	0.0002
using firewood as fuel	-0.00498	0.00777	-0.64	0.5216
per capita cultivated land areas (log)	0.01114	0.01215	0.92	0.3594
% cultivated land under irrigation	0.05131	0.00988	5.19	<.0001
% cash crop areas in total sown areas	0.25902	0.01981	13.07	<.0001
accessible to credit	0.02259	0.01068	2.12	0.0344
grain output (log)	0.27384	0.01301	21.05	<.0001
% sold grain	-0.00281	0.01517	-0.19	0.8532
household population (log)	0.31091	0.07208	4.31	<.0001
square household population (log)	-0.24331	0.03770	-6.45	<.0001
% labor with highest education in junior high school or above	0.03027	0.00629	4.81	<.0001
Root MSE	0.25178	R-Square	0.2712	
Dependent Mean	3.08675	Adj R-Sq	0.2675	
Coeff Var	8.15675			

The indicators included in the village questionnaire cover (1) topography, (2) population and the composition, (3) land utilization, (4) location, (5) infrastructure such as road accessibility, electricity grid, (6) social services, (7) maternal and infant mortality, (8) natural disasters occurred, (9) village enterprises, (9) social services, and (10) government's poverty reduction intervention, including investment, type and coverage of projects.

Most of the proposed indicators for household questionnaire and village survey form are the same as those used for the poverty monitoring system managed by the Rural Survey Organization system. Indicators used in MDG monitoring, including adult literacy, access to safety drinking water, infant mortality and maternal mortality, are also included in the proposed indicators for the developed county level poverty monitoring system, which helps strengthen the monitoring of MDGs at and below the county level. In order to improve the data sharing started from the grassroots, some concerned indicators collected from villages for other purposes are included in the village survey form. These indicators include those for land utilization, social services, maternal and infant mortality, and for government's poverty reduction intervention.

Test Survey

A test survey was arranged to (1) test the effectiveness and feasibility of the tentatively developed indicators for poverty monitoring at / below county level, (2) test the effectiveness and feasibility of the proposed ways for data collection. Two test survey villages were selected based on the representatives for county average in economic development and farmers' income and to ensure necessary variations of income generation activities so that the proposed indicators can be tested. 523 households in Jiangtou village and Banzhuqin village in Xinjie township were interviewed in the test survey in August 2005.

An initial evaluation of the test survey was arranged just after the survey in two villages. In each village, village officers and about ten farmers were invited to talk about their impressions and assess the effectiveness of the proposed indicators in capturing general picture of farmers' poverty status. Two positive responses were got from them. One is that they thought the questions were easily understood and interview of a household took very short time. Another is that they believed the survey can help rank the households and the results were very closing to the reality.

The statistic result of the test survey shows that the proposed poverty monitoring system is economically acceptable at least in the field survey stage. The time spent for completing a household questionnaire averaged 15 minutes ranging from 6 minutes to 30 minutes. It takes about two working days completing the village forms.

In order to further see the effectiveness of the proposed poverty monitoring indicators in matching the perceived poverty status of households in communities, participatory ranking of all households in two communities (natural village) in two surveyed villages was arranged. At the same time a simple poverty index has been developed to measure the poverty status of households and compare with the results of the participatory ranking. 15 indicators highly correlated with income and consumption based poverty are considered when constructing the poverty index, which are listed in table 5. The cut-off parameters for the indicators of continuous distribution are decided somehow arbitrarily. All the selected indicators are valued either 1 or 0. The poverty index of a household is the sum of value of all indicators divided by 15. No weight is imposed on indicators. The value of the poverty index defined in this way indicates the incidence of 15 problematic areas relating to poverty. The value of poverty index is ranged from 0 to 1. Therefore, the higher the value of poverty index the poorer the household is.

No.	Indicator	No.	Indicator
1	the ratio of labor with productive capacity to household population less than 50%	9	Without sheep or goats
2	Highest education at primary or below	10	Without draught animals
3	Without skilled labors	11	House built over 20 years
4	Without migration over 6 months	12	No color TV set
5	Without off-farm employment	13	No truck/tractor
6	The proportion of cash crop areas less than 20%	14	Having university or technical school students
7	Per capital cultivated land areas less than 0.5 mu	15	There is at least one member hospitalized
8	Without pigs		

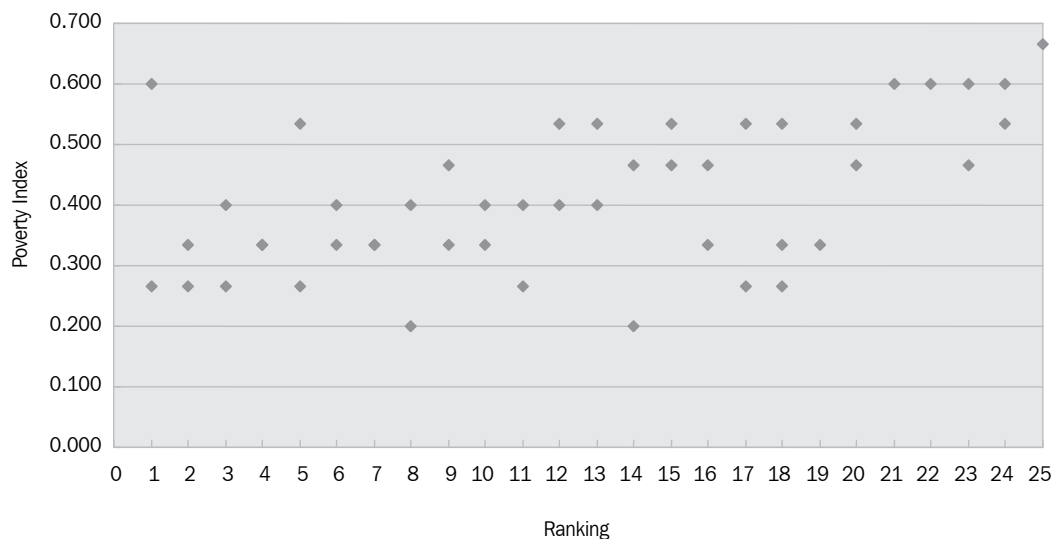
It is found from table 6 that the values of poverty index of the interviewed households are highly correlated with results of the participatory ranking (chart 2), in particular, for the bottom quintile of households. In two communities, the bottom quintile of households ranked in the participatory manner has highest poverty index value. The obvious exception in Jiangkou village, where the household ranked number one has a higher poverty index value, is owing to the special case of the household. An old couple depends on the transfer of their rich son for a decent living.

4.4 Proposed Institutional Arrangement

A feasible county poverty monitoring system needs not only good designs for workable ways for surveys and for proper indicators but also reasonable institutional arrangements to ensure the smooth operation of the proposed system. It is very important to identify suitable actors in data collection, checking, entry, processing and management.

Data collection. Village committee officers can be trained to play the major actors in collecting the raw data for households and villages because of their advantages and capacities owned. Firstly, village officers are also farmers who

Chart 2 Participatory Ranking and Poverty Index



Jiangtuo		Banzhuqin	
Participatory Ranking from the Richest	Poverty Index	Participatory Ranking from the Richest	Poverty Index
1	0.600	1	0.267
2	0.333	2	0.267
3	0.267	3	0.400
4	0.333	4	0.333
5	0.533	5	0.267
6	0.333	6	0.400
7	0.333	7	0.333
8	0.400	8	0.200
9	0.333	9	0.467
10	0.333	10	0.400
11	0.267	11	0.400
12	0.400	12	0.533
13	0.533	13	0.400
14	0.200	14	0.467
15	0.467	15	0.533
16	0.467	16	0.333
17	0.267	17	0.533
18	0.267	18	0.333
18	0.533	19	0.333
20	0.467	20	0.533
21	0.600	21	0.600
22	0.600	22	0.600
23	0.467	23	0.600
24	0.600	24	0.533
25	0.667		

live with village farmers in the same community, therefore, are familiar to the situations of all households and easily obtain the villagers' information with affordable cost. Secondly, village officers usually are capable farmers in the villages with higher education and management capacities. Thirdly, village officers are paid by the government for their services. In yunnan, usually there are nine village officers in a village who are paid with 240 yuan to 360 yuan monthly by the government. Provision of information to the government is a part of their assigned duties. When needed, village school teachers can also be trained to serve as household interviewers. Intensive and consistent training are needed for ensuring the quality and reliability of the data collected by village interviewers. Survey manual with detail and clear explanation of all indicators are also necessary for village interviewers so as to have the understanding of the indicators' definition in common.

Data checking and entry. Township statisticians can be trained to take charge of quality control of the raw data collected by village interviewers and data entry when surveys of all households are completed. Township statisticians are able to take the responsibility for data checking and data entry because of their capacities and other advantages. Firstly, most township statisticians attained education of technical school or university and mastered basic statistic skills, therefore, can check the logical and survey errors. Secondly, township statisticians work very closely with village committee officers and are aware of the general situations in the township. They can judge the collected data from their impression and knowledge of the villages. Thirdly, most of other data collected by village committee are normally reported to township statisticians. It is somehow nature to let them play roles in checking poverty monitoring data. Data entry would take the township statisticians about one month depending on the size of population. This should be coordinated with township government.

Data processing and management. County statistic bureau can take the responsible for training of township and village interviewers, for data processing and analyses, data distribution, and data management because of its advantages and special positions. Firstly, the statistic department is the sole legal organization in China to issue official figures on poverty and other socio-economic activities. The statistic department is in position to coordinate and use the data collected by other departments and ensure the legality and authorities of the provided data. Secondly, the statistic bureau is now financed by government budget and has responsibility and duty to manage the data relating to national and local social and economic development. Thirdly, the statistic bureau is a professional department and has skilled staffs in statistic processing and analyses. Finally, the statistic bureau is the technical supporting and administrative departments of township statisticians. It can easily incorporate the training of and instruction for township statisticians into its routine planning and related activities.

Frequencies of the proposed poverty monitoring. The monitoring at village level would be on yearly basis because of the needs for poverty monitoring data and the cost needed for collecting and processing the data. The monitoring of households could be biyearly or every five years depending on the demands of the government for the data and their willingness of government or donors to finance the monitoring.

Financing. Developing poverty monitoring system at county level is to meet the needs of government, both central and local, for improving the effectiveness and impacts of poverty reduction planning making and policy making. Central government and local governments hold responsibilities for supporting the operation of the system technically, financially and administratively. As discussed in previous sections, the proposed system will likely coordinate the data available and improve the data sharing and management. Efforts will also be made to collect data at household level. Most increased works for data collection and entry as well as simple processing at village level, township level and county level can be incorporated into exiting statistic and administrative system. More additional efforts need to be made in training staffs of statistic department in data management and data analyses and in purchasing needed computer. The central government could cover the cost in these areas.

5. Implementation of the Proposed Poverty Monitoring System in Dayao

The field survey of all households and villages in Dayao was started on January 1, 2007 and completed by the end of May 2007. 64551 households in 128 villages of 12 townships and 128 villages have been investigated through the survey. After post-enumeration of 115 households in two communities and evaluation by comparing the results of post-enumeration with those of census in the two communities, the quality of the survey is estimated to be very high with average error rate of 0.1 %.

In order to save costs and time for the survey and for the households, the field survey of the TA was arranged in the time concurrently with the national agricultural census. A set of measures have been made to ensure the smooth implementation of the survey with controlled quality. Firstly, a temporary leadership and coordination system has been established. Dayao government established a leading group for County Poverty Monitoring System surveys with a deputy governor as the hoc group leader. The county government put the survey in the top ten priority works of the government to coordinate the concerned works. Secondly, sufficient preparatory works have been undertaken to ensure the smooth implementation of the field survey. (1) Stage by stage intensive training was arranged for the survey instructors and enumerators. The experts from NBS and provincial department of Survey firstly provided training for the staffs of county

bureau of Statistics. The staffs of county bureau of Statistics that served as supervisors in the process of survey provided training for township survey instructors. The staffs of county bureau of Statistics and township survey instructors together provided training for village enumerators. (2) Survey sub-districts were identified in villages. In order to ensure the field survey in villages going on smoothly, each village is divided into some survey sub-districts according to the distribution of settlements, geographic and social relations. Total 918 sub-districts have been identified in 128 villages. Thirdly, actions have been taken to ensure the quality of the survey. (1) Building responsibility system at each level to strength the leaders' responsibilities for quality control. The County Surveying Office staffs supervised and inspected one township respectively in a group of two persons; village and township staffs supervised and inspected one surveying sub-district respectively in a group of 2 to 3 persons; and one instructor was responsible for supervising and inspecting 2 – 3 surveying sub-districts. Relevant problems were required to be solved right on the site. (2) Review and countercheck. This was done by county and township supervisors on a spot-check basis; the township survey instructor was responsible for reviewing the surveying sub-district on an all-round basis while surveying staffs paid a return visit the household in case of problematic indicators.

6. Tentative Analyses of the Replicabilities of the Developed Poverty Monitoring System

Whether the developed poverty monitoring system can be replicated in other regions in the future is highly relying with the effectiveness of the developed system in satisfying the data needs of local government in planning making and policy making and with the costs for supporting the development and operation of the system.

6.1 Analyses of the Effectiveness of the Developed System

It takes time to test the effectiveness of the developed poverty monitoring system. But it is clear that the developed system can play some important roles in policy making and planning making relating to poverty and development in Dayao from the feedback received from local governments. This report mainly highlights the areas of possible application of the developed system.

Sector and Poverty Reduction Planning

The developed system can provide comparatively complete information on rural development covering all households in all villages and all townships in Dayao county. This can help the sector departments in the county and township government better understand the development status and differences among townships and villages as well as households, and more clearly identify the gaps of development by sectors. Therefore, it is believed that the system can help the county government departments and township governments to improve the targeting and effectiveness of planning making in Dayao.

The system cover most information needed for poverty reduction planning, which will help improve the targeting and effectiveness of poverty reduction planning making and resource allocation in Dayao

Identification of the Targets for Poverty Reduction

It is an important task set for the system to identify targets for poverty reduction and to evaluate the impacts of poverty reduction interventions. There are two possible ways to identify the targets for poverty reduction depending on the requirements. One is to identify the targets indirectly by clustering the constraints for development or factors led to poverty. Another is to simulate the income or consumption expenditure of each household using the related indicators. Constructing poverty index is needed whatever ways are adopted. The second solution has been discussed by the poverty mapping approach (Ahmad and Goh, 2007). Identifying the targets indirectly by clustering the constraints for development or factors led to poverty may be more useful for poverty reduction intervention. It is to cluster the fundamental constraints for poverty reduction and develop a poverty index to identify the target for poverty reduction planning making and policy making. One method has been proposed to calculate poverty index when analyzing the results of test survey in two villages in section four, where 15 indicators are used to construct a household poverty index. Using this method to calculate the poverty index for Dayao county, the average poverty index of all households is 0.461. The distribution of the frequency of numbers of poverty related indicators and poverty index by households and population is presented in

table 7. There is none household with incidence in fourteen or fifteen indicators. If using the value of poverty index of 0.6 as the cut-off line, there are 23% households and 17% population that can be taken as the target for poverty reduction. If the cut-off line moves down to 0.5 of poverty index, the targets increase to 42.8% households and 36.6% population. When the line moves up to 0.667, there are only 9.92% households and 5.96% population being targeted. In current situations in Dayao in which only 5% population can receive the minimum living standard protection scheme (dibao) subsidies and the annual investment for poverty reduction are less than CNY30 million, it is reasonable to use poverty index of 0.667 (which means the households have 10 or more poverty related indicators in problem among total 15 indicators) as the cut-off line for identifying dibao beneficiaries and using 0.5 or 0.6 as the cut-off line for development based poverty reduction intervention. When this poverty index is used to identify the target villages for poverty reduction, it needs to be modified by adding some community indicators.

Table 7 **Distribution of the Number of Poverty Related Indicators and Poverty Index in Dayao**

Number of Poverty Related Indicators	Poverty Index	% Households	% Population
1	0.067	0.008	0.009
2	0.133	0.135	0.177
3	0.200	0.998	1.248
4	0.267	4.328	5.208
5	0.333	12.116	14.022
6	0.400	18.042	20.015
7	0.467	21.544	22.767
8	0.533	19.837	19.493
9	0.600	13.075	11.096
10	0.667	7.238	4.667
11	0.733	2.494	1.211
12	0.800	0.177	0.083
13	0.867	0.009	0.003

Except for above method, another method has also been explored to construct household poverty index in Dayao. Rather than measure the value of poverty index of households, the new method directly put the households in the targets for poverty reduction as long as they are constrained by one or more constraints for poverty reduction. In some sense, this method does not measure the poverty index for all households but it is used to identify who are the targets and what intervention the households needed for escaping from poverty. Five types of indicators regarding the key constraints are included when developing a household poverty index using the new method. (1) Lacking labor capacities or higher labor dependence rate has been regarded as one important cause for poverty formation. The included indicators can be number of households without labor force, number of household members lost labor capacities partly or completely due to physical handicap and mental problems, and number of households with very high labor dependence rate (say, one labor needs to support over 4 dependent members). (2) Sickness is one important factors led to poverty. Using whether the household has hospitalized persons or people with chronic disease to measure the sickness led poverty. (3) Limited production size, unreasonable production structure and lacking off-farm employment opportunities are key constraints for poverty reduction. It is possible to estimate the degree of deprivation in this regard using indicators like land areas, land under irrigation, proportion of cropping land used for cash crops, number of labors in migration and in off-farm employment. (4) Adverse environment and conditions affect the agricultural productivity and time spent on economic activities as well as the quality of life. Access to safety drinking water, access to motorable road, topography, and natural disasters, can be used to estimate the degree of the deprivation in this area. (5) The education attained and skills owned by the household members are closely correlated with the income generation capacities. The highest education attained by the household and skills owned are two usable indicators. In addition, quality of housing and possession of color TV sets and transport facilities are good indicators for distinguishing the poor from the others because normally they represent a way for decently living. When this constraints-based poverty estimation method is applied in practice, there are cases where one household may be identified as poor by more than one constraint. As long as one household is taken as poor household by any one constraint, the household is counted as poor household. But poor households can be classified into single constraint led ones, double constraints led ones and multiple constraints led ones according to the number of constraints they are facing. Using this method, the incidences of poverty by households and by population in Dayao county are 18.35% and 13.48% ⁵respectively (Annex II). Among the poor households, 33.2% belongs to single constraint

5 Mr. Wang Jianwei in Yunnan Provincial Department of Survey helped calculating the poverty index for Dayao and townships.

led poverty. 26.9% is in double constraints led poverty and 39.9% in multiple constraints led poverty. It is noted that the poverty index constructed using these indicators is mainly for identifying the target for poverty reduction intervention although it can also be used for estimating incidence of poverty.

In order to see the linkage of the constructed poverty index and income based poverty, an excise has been done to estimate the coverage of the income based poor households in the newly estimated number of poor households. When the lower official poverty line by which per capital annual net income is set CNY693 in 2006 is used, there are 50.5% income based poor households being covered by the poor households estimated using the new method. When a higher official poverty line (the so called low income line) by which per capital annual net income is set CNY958 in 2006 is used, 48.2% poor households can be covered. It should be kept in mind that the proposed approach is not for directly measuring income based poverty though it can play a role in estimating income based poverty.

The poverty index can be adjusted or modified according to the needs. For example, when the Civil Affairs department likes to identify the target of rural minimum living scheme and some unified criteria are decided, the data developed from the poverty monitoring system can be used to develop a special index for identifying the eligible beneficiaries.

6.2 Cost Estimation for the Extended Application

The costs for applying the developed system in other regions can be roughly broken down into two broad categories, costs for personnel and for equipment and other materials. The costs mainly incur in the areas of (1) technical supporting, (2) data collection, (3) data checking, entry and analyses, and (4) data maintenance and management. The direct incurred personnel costs for training of survey instructors and assistants, data collection, data entry in Dayao are about CNY 300,000 excluding the input from Dayao county Statistic Bureau. The material costs and equipment procurement estimated about CNY100,000. The actually incurred costs in Dayao county can provide a basis for estimation of costs. Among all incurred costs, the direct costs for data collection accounted about 50%, mainly the subsidies for village and villager group cadres. It is found that the time needed for completing one household interview is fourteen minutes for the test survey and it may increase to about twenty minutes when the complete survey was done. The time estimation made here does not consider the time spent for walking on the way and for waiting. If the time for household interview can be more flexible, assuming it can be completed within one year, it takes about twenty hours to complete the interview of all households in one community of about 50 households. The data collection can also be assigned to village cadres or teachers in village primary schools with flexible time requirement. It is reasonably believed the cost for data collection can be cut by one half or even two-thirds, which means one village need to increase the subsidies for village cadres for about CNY 600 every one round of survey of households and the village in average. The increased subsidies for village cadres can be covered by local governments because the developed system can provide more detail and useful database for local planning making and project preparation.

The incurred costs for data entry, for printing survey forms and for computer procurements can also be reduced to some extent if allowing for flexible timing and computer equipment management. It will require about CNY100,000 to complete the data entry in a county with the size similar to Dayao. This part of incurred costs can be covered by central government and charged to data users. The total costs for applying the system in a county with the size similar to Dayao will be around CNY200,000 if the system can be institutionalized. If the system is applied in all nationally designated poor counties, the total costs for one year estimate to be about CNY180 million assuming each poor county costs CNY 300,000 in average.

7. Conclusions and Suggestions for Future Application of the Developed System

7.1 Conclusions

The TA has developed a poverty monitoring system at county level and tested the developed system in Dayao county, Yunnan province in PRC based on the assessment of the existing poverty monitoring, analyses of the demands for poverty monitoring data and the data gaps. Following conclusions can be reached based on this study.

- (1) The existing poverty monitoring system in China has been unable to meet the requirements of the government and other poverty intervention organizations for (1) identifying the targeting households, villages and intervention areas, (2) reliable data for policy and planning making on poverty reduction at county and below county level, and (3) for evaluating the effectiveness of the selected poverty interventions.
- (2) It is unrealistic and impossible to merely rely on income and expenditure based poverty monitoring data at and below county level to meet the demands of the government and other organizations for reliable data for policy and planning making on poverty reduction. Developing a poverty monitoring system based on easily collected and well designed non-income and expenditure indicators at and below the county level would be a reasonable and feasible option.
- (3) The developed poverty monitoring system has been found to be useful and effective in identifying the targets for poverty alleviation and therefore for policy and planning making at and below the county level. The developed system has showed its value in predicting the number of income based poor households to some extent. But it is suggested not to directly use the proposed poverty index to replace the estimation of poverty based on income and expenditure data. This may be improved by including some additional indicators more related to income generation. Of course, the adjustment may increase the costs for the operation of the system.
- (4) The developed poverty monitoring system has been found to be developed economically acceptable. It needs about 20 minutes to complete a household questionnaire. The costs for one poor county, including data collection, data entry and procession, average about CNY300,000 or USD43,000 at current exchange rate.

7.2 Modification of the Indicators

The developed poverty monitoring system needs to be modified to adapt to local circumstances in the applied regions. When the characteristics of the design in developed indicators of simplification and being replied by neighbors in case of the absence of the household adult for a long time are maintained, some new indicators need to be added and some questions be modified. For example, income transferred by the relatives of kin should be considered by asking whether there are any relatives of kin offering larger amount of transfer. Other agricultural production activities other than crop planting and livestock should also be taken into account. The number of illiterate persons in the interviewed households can be replaced by the question, how many persons cannot read newspaper and write a note. And the questions for livestock can be separated the slaughtered animals from sold animals.

7.3 Possible Application of the Developed System in Future

The developed system can be applied to other areas after some modification because the system can address largely the data issues in planning making and project development relating poverty reduction and rural development. It can be used in different ways depending on the requirements.

Monitoring and Evaluating Poverty and Social Development in project areas

Sample survey and participatory assessment are usually applied in poverty and social development monitoring and evaluation when developing and assessing a project relating to development. The developed poverty monitoring system can provide another option for poverty and social development monitoring and evaluation when a specific project is developed or evaluated. Compared with sample survey and participatory assessment, this approach can provide objective data for all beneficiaries with a relative low cost and easier ways for collecting the information because almost all questions can be replied by the neighbors in case of absence of the interviewed households.

One-time survey for poverty reduction plan or Dibao plan making

The system can also be applied when one-time survey is made for poverty reduction and the minimum living standard protection scheme (Dibao) planning making.

Regular household reporting

The developed poverty monitoring system can also be used for regular household reporting system because the dynamic change of poverty and development status over time. If the system can be upgraded as a component of national poverty and development monitoring system, the survey can be undertaken every five years and incorporated into population census and agricultural census. If the frequencies of the survey are more than every five years, it can work through the household reporting system in which the information on all households are collected in one year without setting unified time for interview.

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Annex I Description of Variable in OLS						
	Variables	N	Mean	Std Dev	Minimum	Maximum
Y1	net income per capita (log)	7800	3.0275609	0.2364932	2.1659	5.0185
Y2	living consumption expenditure per capita (log)	7800	3.0867544	0.294173	0.7559	4.4254
X1	hilly or mountainous	7800	0.8910256	0.311627	0	1
X2	% natural villages connected to electricity	7800	0.9255526	0.187075	0	1
X3	Living in the village with clinic or doctor	7800	0.9435897	0.230727	0	1
X4	Living in the village with primary school	7800	0.6653846	0.4718861	0	1
X5	distance to bus station (log)	7800	0.3544733	1.2445645	-2	2.1139
X6	distance to nearest market (log)	7800	0.1474579	1.1889297	-2	2.0414
X7	Grain output loss made by natural disaster more than 50%	7800	0.074359	0.262371	0	1
X8	% below 6 Children	7800	0.0735682	0.1229816	0	0.667
X9	% population speaking Mandarin	7800	0.9279386	0.2005439	0	1
X10	% physical healthy population	7800	0.9372363	0.1524663	0	1
X11	% population capable of seeing doctor in case of sickness	7800	0.7778212	0.4112418	0	1
X12	labor population ratio	7800	0.2029267	0.1517481	0	0.9031
X13	% labors engaged in agriculture	7800	0.9241577	0.1862964	0	1
X14	% labors engaged in agriculture over 6 months	7800	0.8246946	0.2974138	0	1
X15	% labors engaged in non-agricultural activities over 6 months	7800	0.0562171	0.1611473	0	1
X16	% labors in migration	7800	0.0658701	0.1682847	0	1
X17	% labors migrated over 6 months	7800	0.0339712	0.1249158	0	1
X18	household with over 2 children	7800	0.1332051	0.3398181	0	1
X19	household of three generations	7800	0.3119231	0.4633083	0	1
X20	highest education: illiteracy	7800	0.0465385	0.2106616	0	1
X21	highest education: primary school	7800	0.3417949	0.4743416	0	1
X22	highest education: junior high school	7800	0.4946154	0.5000031	0	1
X23	highest education: senior school	7800	0.0882051	0.2836112	0	1
X24	highest education: college	7800	0.0287179	0.1670234	0	1
X25	Building or buying a new house	7800	0.0511538	0.2203256	0	1
X26	Marriage or funeral	7800	0.0365385	0.1876377	0	1
X27	having members studying in university or technical school	7800	0.0188462	0.1359902	0	1
X28	hospitalization	7800	0.0257692	0.1584563	0	1
X29	Owned house is made of concrete	7800	0.0557692	0.2294903	0	1
X30	per capita draught animals in stock (log)	7800	-0.9649697	0.8055054	-2	1.2109
X31	per capita pigs in stock (log)	7800	-0.219561	0.6053349	-2	1.2218
X32	per capita sheep or goats in stock (log)	7800	-1.7549373	0.7212636	-2	1.2833
X33	Own a color TV	7800	0.6757692	0.4681167	0	1
X34	Own a motor bicycle	7800	0.0589744	0.2355918	0	1
X35	Own a truck or tractor	7800	0.0503846	0.2187513	0	1
X36	own toilet	7800	0.6679487	0.4709795	0	1
X37	connected to electricity grid	7800	0.9628205	0.1892135	0	1
X38	accessible to tap water	7800	0.5601282	0.4964033	0	1
X39	difficult in fetching water	7800	0.1817949	0.3857001	0	1
X40	using firewood as fuel	7800	0.7588462	0.4278109	0	1
X41	per capita cultivated land areas (log)	7800	0.1051046	0.2951945	-2	1.4139
X42	% cultivated land under irrigation	7800	0.3853338	0.3244785	0	2
X43	% cash crop areas in total sawn areas	7800	0.1730309	0.1540884	0	1
X44	accessible to credit	7800	0.0798718	0.271112	0	1
X45	grain output (log)	7800	2.5947765	0.280685	0.7782	3.5911
X46	% sold grain	7800	0.1387001	0.199628	0	1
X47	household population (log)	7787	1.447346	0.3103319	0	2.6390573
x48	square household population (log)	7800	2.894123	0.6168638	0	5.2781147
X49	% labor with highest education in primary school or above	7800	0.9534615	0.2106616	0	1
X50	% labor with highest education in junior high school or above	7800	0.6115385	0.4874317	0	1

Annex II Incidence of Poverty Using Constraints Based Poverty Index							
Incidence of Poverty in Dayao by Constraints and by Township (%)							
Poverty	Dayao county	Jinbi	Shiyang	Liuzuo	Longjie	Zhaojadian	Xinji
A. Poor households							
1.Incidence of Poverty	18.35	11.51	17.38	26.44	18.29	22.41	16.40
P1. Production capacity constrained poverty	5.81	3.72	5.15	11.52	5.35	8.57	4.43
P2.Sickness led poverty	6.03	3.21	5.56	7.76	4.34	9.69	4.92
P3.Production and employment constrained poverty	9.71	6.78	9.05	15.85	7.99	8.86	8.05
P4.Environment and condition constrained poverty	8.48	5.75	6.99	12.45	10.96	11.15	8.40
P5.Capacity constrained poverty	11.61	5.42	11.08	16.90	11.82	13.89	11.71
2.Dimensions of poverty							
(1)Single factor led poverty	6.09	4.43	6.12	8.48	6.30	7.18	5.26
(2)Double factors led poverty	4.93	2.94	5.00	5.41	5.02	5.93	4.52
(3)Multiple factor led poverty	7.32	4.14	6.25	12.55	6.97	9.30	6.62
B. Poor population							
1.Incidence of Poverty	13.48	7.75	12.20	20.08	12.63	16.50	11.74
P1. Production capacity constrained poverty	4.12	2.54	3.40	8.65	3.22	5.88	2.79
P2.Sickness led poverty	4.49	2.17	3.92	5.69	2.91	7.32	3.52
P3.Production and employment constrained poverty	6.55	3.91	5.77	11.04	5.08	5.35	5.08
P4.Environment and condition constrained poverty	5.67	3.42	4.37	8.95	7.02	7.30	5.48
P5.Capacity constrained poverty	7.53	2.78	6.91	11.36	7.29	8.75	7.45
2.Dimensions of poverty							
(1)Single factor led poverty	5.33	3.78	5.06	7.76	5.23	6.52	4.54
(2)Double factors led poverty	3.56	1.86	3.53	3.85	3.41	4.49	3.30
(3)Multiple factor led poverty	4.60	2.11	3.61	8.47	3.99	5.48	3.89
Poverty	Tanhua	Guihua	Wanbi	Tiesuo	Santai	Sanchahe	
A. Poor households							
1.Incidence of Poverty	27.27	24.10	31.44	28.23	16.67	17.50	
P1. Production capacity constrained poverty	10.13	7.66	6.17	8.61	6.12	7.10	
P2.Sickness led poverty	9.31	3.67	14.19	15.28	3.79	6.79	
P3.Production and employment constrained poverty	15.36	13.12	17.89	17.49	8.23	7.70	
P4.Environment and condition constrained poverty	9.99	9.65	12.87	12.19	6.70	7.13	
P5.Capacity constrained poverty	21.32	16.24	22.29	19.92	9.36	11.88	
2.Dimensions of poverty							
(1)Single factor led poverty	7.15	8.41	9.10	6.44	6.80	5.77	
(2)Double factors led poverty	7.01	8.09	9.24	6.82	4.30	4.63	
(3)Multiple factor led poverty	13.11	7.60	13.10	14.97	5.57	7.10	
B. Poor population							
1.Incidence of Poverty	19.81	18.77	26.03	24.91	13.07	12.81	
P1. Production capacity constrained poverty	7.58	5.56	4.77	7.49	5.53	5.46	
P2.Sickness led poverty	6.36	2.71	11.54	14.01	3.07	5.02	
P3.Production and employment constrained poverty	10.10	10.13	14.62	15.62	5.77	4.88	
P4.Environment and condition constrained poverty	7.32	6.55	9.98	10.47	4.77	4.56	
P5.Capacity constrained poverty	13.99	11.34	17.09	16.52	6.11	7.69	
2.Dimensions of poverty							
(1)Single factor led poverty	6.28	7.45	8.42	6.23	6.34	5.26	
(2)Double factors led poverty	5.14	6.57	7.81	5.70	2.74	3.11	
(3)Multiple factor led poverty	8.39	4.75	9.80	12.98	3.99	4.44	

Household Questionnaire

Name of Province _____

Name of County _____

Name of Township _____

Name of Village _____

Name of Interviewee _____

Signature of Interviewer _____

Date of Interview _____

	Unit	Code	Value
A. General information		--	
1. Name of the village		--	
2. Code of village		01	
3. Code of the community		02	
4. Code of interviewer		03	
5. Head's name: _____, Code of households		04	
6. Nationality(Han=1,Yi=2,miao=3,others=4)		05	
7. Gender of interviewee(male=1,female=2)		06	
B. Survey questions		--	
1. Population		07	
Of which:0-6		08	
7-15		09	
16-60		10	
Over 60		11	
2. Type of households (1=Single or a couple; 2=One couple with a child; 3=One couple with two children; 4=One couple with 3 or more children; 5=Three generations; 6=Others)		12	
3. Highest education attained (1=Illiteracy; 2=Junior primary; 3=Senior primary; 4=Junior high school; 5=Senior high school; 6=Over senior high school)		13	
4. No. illiterate persons among over 16 population		14	
5. No. of 7-15 population not in school		15	
6. Can the Household head speak mandarin		16	
7. No. of labors with skills		17	
8. Number of the disabled		18	
9. Can your family member see doctor timely in case of being sick		19	
10. No. labors partly losing working capacity		20	
No. labors losing most working capacity		21	
No. labors losing working capacity completely		22	
11. No. persons purchasing medical insurance		23	
12. No. persons purchasing pension insurance		24	
13. No. labors engaged in agriculture over 6 months		25	
No. labors in migration over 6 months		26	
No. labors employed in off-farm business over 6 months		27	
14. Sown area of grain	Mu	28	
15. Sown areas of cash crop	Mu	29	
16. Irrigated cultivated areas	Mu	30	
17. No. of sold or killed pigs		31	
No. pigs in stock		32	
No. sold or killed sheep		33	
No. sheep in stock		34	
No. sold draught animals		35	
No. draught animal in stock		36	
No. livestock died owing to diseases		37	
18. Distance from village center	km	38	
19. Housing structure (1=Bricks and timber; 2=Mud brick; 3=concrete; 4=Grass; 5=Others)		39	
Time for house building (1=last year; 2=2-5 years; 3=6-10 years; 4=11-20 years; 5=over 20 years)		40	
20. Source of drinking water (1=Pipe; 2=Deep well; 3=shallow well; 4=river and lake; 5=Pond; 6=Others)		41	
21. Time for fetching water (1=less than half an hour; 2=more than half an hour)		42	
22. Fuel for cooking (=LPG or gas; 2=Coal; 3=Firewood; 4=Others)		43	
23. Type of toilet (1=Water; 2=dry; 3=None)		44	
24. Do you have Color TV		45	
Telephone/cell		46	
Motor bicycle		47	
Truck/large tractor		48	
Small tractor		49	
25. Did your family have large or unexpected incidents		--	
children in university		50	
Building or repairing houses		51	
Marriage, funeral		52	
Hospitalization		53	
26. Has your family received subsidies or relieves from the government		--	
Food production subsidies		54	
Reforestation subsidies		55	
Five guarantees subsidies		56	
subsidies for martyr's and army men's families		57	
Disaster relief		58	
Earthquake relief		59	
Allowance for village officers		60	
Reduced tuition		61	
Whether get poverty reduction funds		62	
27. Date of interview			
Starting time			
Completion time		63	

Village Survey Forms

Name of Province	_____
Name of County	_____
Name of Township	_____
Name of Village	_____
Name of Interviewee	_____
Position of Interviewee in the village	_____
Signature of Interviewer	_____
Date of Interview	_____

Questions	Unit	Code	Value
1. No. of natural village in the village (village here refers to administrative village)		64	
2. No. of households		65	
3. Total population		66	
(1) population above 16		67	
Of which: Illiteracy		68	
Of Which: No. of women in pregnant or birth giving at the year		69	
No. of Died women among those who are in pregnant or birth giving at the year		70	
(2) Population aged 6- 15		71	
Of which:No. of those not in school		72	
(3) No. Children under 5		73	
Of which: No. of infant borne in the year		74	
No. of infant mortality		75	
4. Topography 1=Plain (basin) 2=Hill 3=Mountain		76	
5. Total Cultivated land areas	mu	77	
Of which:irrigated areas	mu	78	
Land areas for fruit, silkworm and tea garden	mu	79	
Land areas for forestry	mu	80	
Lands areas for grassland	mu	81	
6. Distance from nearest county town 1=<2km 2=2-5km 3=5-10km 4=10-20km 5=over 20km		82	
7. Distance from nearest market 1=<2km 2=2-5km 3=5-10km 4=10-20km 5=over 20km		83	
8. Distance from nearest township 1=<2km 2=2-5km 3=5-10km 4=10-20km 5=over 20km		84	
9. Distance from nearest primary school 1=<2km 2=2-5km 3=5-10km 4=10-20km 5=over 20km		85	
10. Distance from nearest junior high school 1=<2km 2=2-5km 3=5-10km 4=10-20km 5=over 20km		86	
11. Distance from nearest hospital 1=<2km 2=2-5km 3=5-10km 4=10-20km 5=over 20km		87	
12. Road situation: 1=cements/asphalt,2=sand and cobble,3=soil,4=other pave,5=no motorable road at all		88	
# How many months is the road not usable if there is a road connecting to the township?	month	89	
# How many natural villages are not connected by motorable roads		90	
13. Is the village connected to electricity grid (1=yes,2=no)		91	
How many natural villages are not connected		92	
How many households do not light with electricity		93	
14. Total Grain output of the village in 2004	ton	94	
15. No. of TVEs		95	
16. Was the village hit by any natural disasters in 2004 1=yes 2=no		96	
Was the loss by natural disasters by 50-80% (1=yes 2=no)		97	
Was the loss by natural disasters by over 80% (1=yes 2=no)		98	
17. Government's poverty reduction intervention	—	—	—
(1) Investment of poverty reduction projects completed(yuan)	yuan	99	
Of which:crop planting	yuan	100	
Forestry	yuan	101	
Livestock	yuan	102	
Agro-processing	yuan	103	
Other productive activities	yuan	104	
Physical infrastructure	yuan	105	
Education	yuan	106	
Health	yuan	107	
Other public activities	yuan	108	
(2) Number of households benefited from the projects		109	
Of which:crop planting		110	
Forestry		111	
Livestock		112	
Agro-processing		113	
Other productive activities		114	
(3) Coverage of public projects(%)	—	—	—
% Households benefiting from physical infrastructure projects	%	115	
% Households benefiting from education projects	%	116	
% Households benefiting from health projects	%	117	
% Households benefiting from other public projects	%	118	