

The World Bank

**Implementation Guidelines for
Poverty and Environment Work
in Southwest China**

Summary Report of a Research Project by WWF China

June 2005

List of Acronyms

AAA	Analytical Activities and Assistance
DFID	United Kingdom Department for International Development
EASES	Environment and Social Unit, East Asia and Pacific region, the World Bank
IGPEW	Implementation Guidelines for Poverty and Environment Work
LGPR	Leading Group for Poverty Reduction
MESD	Mainstreaming Environmentally Sustainable Development
PAO	Poverty Alleviation Office
TFESSD	Trust Fund for Environmental and Socially Sustainable development
WWF	World Wide Fund for Nature

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1. Background and Objectives

Overview. This report is a summary of research work coordinated by WWF China in 2003-2005 to prepare Implementation Guidelines for Poverty and Environment Work (IGPEW) in China. The research started in Yunnan Province in 2003-2004 and continued in Sichuan Province in 2004-2005. Field research was carried out in the 2 provinces. Research findings have provided a basis to produce two documents in each province: a handbook for use by government staff involved in poverty reduction work in the province, and a poverty & environment checklist for poverty reduction projects. This report describes the research activities undertaken in the 2 provinces and their findings. In addition, an English version of the implementation guidelines for poverty and environment work and of the checklist has been prepared by combining the documents produced in the 2 provinces.

Policy Scope of the Research. The research relates to the Government's on-going Village-Based Integrated Poverty Reduction Plan for Poorer Western Regions. This program is implemented under the 2000-2010 China rural poverty reduction framework. The program was designed by the Government as an improved follow-up of the 1994-2000 national 8-7 Poverty Reduction Plan. Working at administrative village level is a substantial shift compared to the previous program where funding allocation was mostly planned down to county level (although several provinces, e.g. Yunnan, or projects, had piloted a shift to provinces and villages prior to 2000). Under the new program, county and township staff, with technical support from provincial levels, have to complete 10-year development plans in each of several tens of thousands of "key poverty reduction villages". This framework of village plans provides an opportunity to test and adapt the the Poverty & Environment Nexus approach for a practical set of activities undertaken by government staff.

The Poverty and Environment Nexus Approach. An increasingly large body of research is providing evidence of how poverty reduction and environment are strongly linked issues. A nexus is defined as a sector or a problem area with especially strong or meaningful correlations between poverty and environment. Learning more about a poverty and environment nexus helps identifying means of jointly addressing poverty and environmental challenges in programs and policies, whereas these have tended to be addressed separately in the past. The poverty and environment nexus approach goes further than avoiding unwanted environmental and social impacts through impact assessments. The approach aims to understand processes at play and to identify win-win solutions, whereby investments can both generate a reduction in poverty levels, and preserve or improve the environment. The current period in China provides a strong opportunity to develop the poverty and environment nexus approach, since the Government has decided to extend its poverty reduction policy and investment program in China's poor upland and Western regions into the 21st century, and has launched nationwide initiatives to preserve and rehabilitate the environment in these areas.

Program Background. The Mainstreaming Environmentally Sustainable Development (MESD) strategic program is an AAA program of the World Bank, i.e., a research/study program that aims to inform Government policy and future World Bank operations. The objective of MESD in general is to strengthen Government of China's effectiveness in mainstreaming environmentally sustainable development. MESD supports a range of studies that have critical relevance in the development of the poverty and environment nexus approach in China. The design of implementation guidelines for poverty and environment

work is one of these activities¹. Its expected outcome is that the poverty & environment nexus methodology will be adopted in the on-going program of village-level integrated poverty reduction plans in the Poor Western regions. On the WWF side, the macroeconomics program promotes conservation and sustainable development through a new approach to economic development. Poverty and environment is an important program area. The poverty and environment program works to ensure a central role for environmental issues in national growth policies and poverty reduction programs, while demonstrating to conservation organizations the essential importance of addressing the issue of poverty.

Geographical Scope of the Research. The research sample was limited to 8 administrative villages. The sample in itself is not representative of the wide diversity of China's poor areas. The research sites were however carefully selected to provide a contrasted picture that covers most of the environmental and poverty reduction challenges that China's rural poor communities face today (Annex 2). A review of the village-level integrated poverty reduction program was carried out during the research, and this review confirmed the existence of strong patterns in the implementation process of this program. The research has therefore relevance for all poor areas in China that are covered under this program. Relevance is strong for poor areas in Southwest China where most human and environmental challenges at play are covered by at least one research location. Relevance is lower for Northwest China's poor areas that have distinct land use systems and where human and environmental challenges differ from Southwest China to some degree.

Partnerships during the Research. WWF has coordinated research work in both Yunnan and Sichuan. WWF has assembled teams comprising experienced staff and researchers from various agencies, with a mix of poverty reduction practitioners, environment specialists and social science specialists (Annex 1). The provincial Poverty Alleviation and Development offices (PAO) and their county offices have been direct partners. They have taken part in some of the field work and they have jointly published the provincial guidelines. One international consultant has provided methodology support to the Sichuan team and assembled the research outputs that cover both provinces including the present report. The research program is managed by the World Bank through EASES and the World Bank China office in Beijing.

Financial Support. The research was jointly funded by TFESSD (Trust Fund for Environmental and Socially Sustainable Development), the EASES trust fund maintained by the Norwegian and Finnish governments, and DFID through WWF United Kingdom and WWF MPO (Macroeconomics Program Office).

¹ Other on-going activities include (a) resolution of the horizontal/vertical problem in environmental administration, (b) improvement of environmental cost assessment with specifically, integration of the valuation of environmental health risk in environmental cost assessment, (c) a new approach to Environmental Assessment, and (d) a new model for rural development incorporating new development concepts integrating poverty and sustainable natural resource management; this latter activity is closely related to the IGPEW activity.

2. Methodology

Overall Approach. The provincial research teams have used a qualitative field work methodology that combined stakeholder and key informant multi-levels interviews, rural survey tools and participatory rural appraisal tools. This methodology is widely used in the rural sector in Southwest China.

Research Steps. Research activities in each of two provinces included broadly similar steps:

- Provincial stakeholders were interviewed about their views on poverty, environment and linkages between poverty and environment, and about on-going relevant programs and policies. Similar interviews were held during subsequent stages at local levels and with the households.
- Field assessments were carried out including (a) review of existing poverty reduction plans, (b) community participatory assessments, (c) household interviews, and (d) direct observation.
- Information was analyzed, and outputs, including workshops, publications and training courses, were prepared.

Field Work Location Sample. Four counties were selected in each province, and one township with one administrative village in each county. The samples of 4 villages were selected by the provincial teams to (a) cover diversity factors that were assessed to related to poverty and environment, and (b) allow observation of the on-going Village-based Integrated Poverty Reduction Program. In Yunnan, the team, jointly with the Yunnan PAO, selected the villages based on criteria that included poverty types, natural resources, the Yunnan regions, ethnic minority groups and proximity to nature reserves. In Sichuan, a first sample was considered with a focus on ethnic minority areas living close to protected areas in Western Sichuan. This initial sample was revised by incorporating one contrasted village, a Han village in the Sichuan hills, and reducing to two the number of villages close to nature reserves.

Analysis of Findings. The key findings from interviews and field work were analyzed in order to identify an appropriate format for the handbook and checklist. This included:

- Respondents' opinions and knowledge about poverty and environment,
- Poverty reduction activities and their link to the environment,
- Environment protection activities and their impact on poverty, and
- The policy framework.

Preparation of Publications. Draft versions of the handbooks and checklists were reviewed by the poverty reduction administration before a final version was produced in each province. Other stakeholders were also consulted prior to the final versions through provincial workshops.

3. Key Findings in Yunnan and Sichuan

3.1. Stakeholder Interviews

Attitudes Towards Poverty & Environment. In Yunnan Province, stakeholder interviews indicated that there was a number of simplified statements about how poverty and environment are linked one to another in poor areas. The stakeholder interviews carried out at all levels in Sichuan Province, from province level to household level, fully confirmed the existence of simplified statements. Through these statements, while diverse persons have diverse views on poverty-environment linkages, each of them tends to apply a single view about these linkages to all situations encountered. None of the stakeholders interviewed rejected any simplified statement. Altogether, the statements about poverty & environment assembled during the research form a largely similar set in the two provinces:

1. "Poverty is a chief cause of environmental destruction". A similar statement is that poor farmers have no choice but to destroy the environment. They have predatory behaviors on natural resources linked to their extensive farming techniques.
2. "Population growth is a major cause of environmental degradation. In the resource-constrained Chinese context, population growth results in less farmland available per capita and more pressure on natural resources, e.g. for fuel needs. Population increase also reduces opportunities to access quality education and therefore to be able to acquire skills conducive to lower exploitation of natural resources.
3. "Poor farmers do not have technical knowledge or awareness to manage the resources". A similar statement is that poor farmers lack capacity to take into account longer-term benefits that can derive from environment protection. Another statement is that environmental deterioration in poor areas is an outcome of a long-term lack of education among local people.
4. "The Government is in a position to manage resources well". In this statement, the State is seen as having full responsibility to improve the environment. Using compelling action to reverse environmental degradation is seen as a necessity. A related statement is that "poor farmers do not care for the environment". The success or the failure of environmental protection relies on appropriate resource management by the Government.
5. "Poverty elimination should be achieved prior to starting to care about environmental improvement" or "economic growth is only compatible with sound environmental management beyond a given stage of development". In less-developed areas, poverty reduction is seen as inevitably requiring some degree of negative environmental impact. Related statements are that there is an unsolvable contradiction between economic development and environment protection. Another one is that environmental problems will be solved naturally as the economy grows.
6. "There are awful environmental conditions in China's poor areas that both result from poverty and generate more poverty". Poor areas mostly have remote and upland environments, or suffer from limited water availability. Describing environment in these areas as "awful" is a frequent statement in China.

Current Status of the Village Development Plans. In Yunnan, there is a similar number of villages listed as part in the “Village-Based Integrated Development Planning” program for poverty reduction in 3 of the 4 counties surveyed: from 92 to 96 villages. However this number is 50% higher than the number of villages with an income below 625 CNY in 2 counties, but substantially lower in the other. The fourth county has a smaller population and only 32 villages are listed to take part in the program. This amounts to 75% of the poor villages. By the time the survey was conducted in 2003, 20% of the target villages in each county had completed their village plan. In Sichuan, a total number of 10,000 poor administrative villages are listed in the 2000-2010 “New Village” poverty reduction programme. The budget of the New Village programme is 15 Billion CNY, i.e., 1.5 Million CNY for each administrative village, of which 1/3 are grants and 2/3 are poverty loans. This accounts for more than 80% of Sichuan’s 2000-2010 poverty reduction budget. The programme also includes 4 smaller components: resettlement, education, health and pastoral areas. All village plans had already been completed in 2002, and 4196 villages had basically completed activities by end-2004. Therefore 60% of villages still had not completed their planned activities. The villages where planned activities are reportedly completed may have actually spent overall much less than originally planned: in 3 of the 4 villages surveyed, actual expenditures were only 1/3 of the grant budget and a mere 6% on average of the loan budget (with a minimum of 0 in one mountain village, and a maximum of 15% in the Sichuan hills village). Therefore all poor villages, whether activities planned in the early 2000s have been completed or not, have remaining needs to continue planning and implementing poverty reduction activities. There are also new needs emerging from the changing economic context.

Village Development Planning Steps and Standard Project Lists. In each province, a series of standard steps has been defined to prepare the village development plans. There is a detailed list of 8 steps in Yunnan (table 1).

Table 1. Steps in establishing village development plans in Yunnan province.

Planning step	Step in Yunnan Province Village Development Plan
1	Establishing a guiding group, training human resource and making all preparations before working in the village.
2	Collecting and analyzing basic village data through participatory appraisal.
3	Classifying households through villagers’ representative meeting into aid recipient households, households under basic needs, and households at the level of basic needs.
4	Through the villagers’ representative meeting, analyzing village problems and causes, proposing solutions to the problems, suggesting main projects, and conducting a simple feasibility study on the main projects.
5	Holding a villagers’ meeting to vote and finalize the poverty alleviation projects and their priority, and to allocate the projects to the poor households.
6	Calculating the investment budget of the village plan based on unit costs, and formulating a fund-raising plan based on local reality.
7	Holding a meeting with the village committee, heads of villager groups and poor household representatives to establish an implementation leading group and monitoring group, and to discuss the required support for implementation and relevant action plan.
8	Filling forms and writing the village plan.

In Sichuan, there is a broadly similar sequence of steps starting with mobilizing the community, continuing with a local survey and household interviews, and followed by the selection of projects. This selection generally takes place through a villager meeting (this

meeting has the legal status of an official decision-making meeting in administrative villages) through the ranking of proposed projects. The village plan is then written down and sent to the county for review and funding applications. Environment is not mentioned as such in any of these steps. It is important to note that “sustainability” is generally understood in terms of lasting poverty reduction impact of the investment, not in terms of incorporation of environmental concerns or of improved development model. This is all the more the case as a substantial proportion of poor people are known to “fall back into poverty”. It is equally important to note that the plans physically take the form of a simple investment table, showing a list of “projects”, e.g. raising one type of animal, growing one crop, building one type of infrastructure, and mentioning the scale of investment and the numbers of households planning to join. A key research finding is that there is actually a list of standard poverty reduction projects in each province, and that villages actually choose their activities from this list. The list is comprehensive with 55 items in Sichuan. However the list does not invite local communities to invent alternative solutions. And none of the items refers to the environment.

Village Development Planning Responsibilities. In Yunnan province, the procedure emphasizes the importance of villager participation. In practice, participation was found to be uneven in the four villages studied. In one village, all villagers were invited in a project selection meeting. In two others, only villager representatives took part. In the fourth one, the village cadres prepared the plan by themselves. The participation of technical staff from various departments at county and township level is required. In practice, this took place in some villages while in others the village was left alone to prepare its plan. The plans are examined at township and county levels, approved at prefecture level, and archived at province level. In Sichuan, contrasted responsibilities in village development planning were observed in the 4 counties visited. The plans were mostly designed by county staff coming to the village in one case, the township and village cadres simply joining in the exercise. In two other villages, township staff worked jointly with the village cadres. In the fourth village, the village cadres managed the exercise themselves. In all cases in Sichuan, the township and county levels review the process. Participation by the households themselves was contrasted: in two cases, households were first interviewed and then joined decision-making meetings to prioritize projects. In one case, the households were also invited to make individual applications. In the Han village in the Sichuan hills, the village activities were decided at higher levels. In summary, staff and cadres at all levels, from province to natural village, have some degree of responsibility in village planning, and therefore in potentially incorporating environment in the plans. And the potential to rely on local participation to enhance attention to the environment ranges from good in some instances to limited in others.

Environmental Awareness. An important finding of the Sichuan team is the general lack of awareness of environmental issues among poverty reduction staff. This has three types of consequences. First, environmental impact generated from specific projects is not addressed. For example, maize covered with plastic mulch has been a standard poverty reduction activity throughout China. While the “white pollution” problem of uncollected plastic is well known, no action is taken to actually collect plastic mulch. Second, the Sichuan team observes that more is said than done about environmental problems, from farmer to government levels. The team therefore decided to give its research outcomes a strong operational focus. Third, there is an important need to raise environmental awareness at all levels. Poverty reduction programs are just starting to pay attention to this type of activity. A trial environmental awareness project has been completed in counties villages in Sichuan with one pilot village in each, and results are promising.

Sustainable Development in Provincial Planning Frameworks. Combining the sustainable development of poor areas with “ecological environment” protection is a guiding principle of

the 2000-2010 rural poverty reduction and development masterplan due to the position of the two provinces in the upper Yangtze riverbasin. This means that “win-win” projects, that are conducive to both poverty reduction and environmental protection or rehabilitation, can be expected to become more common place. The Sichuan team notes that comprehensive projects, for example projects combining homegardens, animal raising and fodder development, are increasingly encouraged. Such comprehensive activities fit well into existing local views on rural development. Both village cadres and poverty reduction cadres are already used to planning comprehensive sets of activities. In Sichuan, one example is the “mountain-water-paddy field-forest road” scheme whereby investments into rainfed farmland improvement, irrigation, drainage, tree crop plantations and roads are planned in an integrated manner.

3.2. Observations in the Research Sites

Environmental Issues Observed. The research teams observed fairly high presence of environmental issues in the 8 villages studied. Some relate to degradation related to human activities, some do not. These issues can be classified into 5 categories (there is not order of priority among them):

- Grassland degradation. Grassland environment was surveyed in one county in SW Sichuan, and degradation of the grassland was observed. A combination of factors leading to that degradation was identified. These include human activities such as collection of medicinal roots, overgrazing from the increasing numbers of animals kept, or drainage for land reclamation, and wildlife damage, for example by rats, that trigger “grassland desertification”.
- Soil erosion and degradation of vegetation cover. In upland areas in Sichuan, this second type of issue was observed and was found to be due to a combination of on-going activities including overharvesting of medicinal plants and wild vegetables, large quantities of timber being logged to build traditional-style houses, inappropriate mining techniques, raising of free-ranging pigs and goats, and cultivation of food crops and cash crops on slopes. Large-scale degradation of the forest cover in the past decades remains however the main cause for the degradation observed today, to the point that it appears to have modified microclimates and increased risks of natural disasters such as flooding. In the Sichuan hills, soil fertility has declined too, but for a very different reason: farmers have shifted from the use of organic manure to chemical fertilizer. In Yunnan the issue of soil erosion is more prevalent in Huize, the Northeast county where elevation, population densities and the development of commercial crops are all fairly high, and in Guangnan, the karst county in Southeast Yunnan where there is a combination of degraded vegetation cover and farming on marginal soils typical of karst areas in China.
- Pollution of water sources. Animal raising is an important part of the economic development projects conducted in poor areas. Pollution of surface waters from unmanaged animal waste was observed in the Southwest and Northeast Yunnan counties, as well as in Sichuan. Pesticides and chemical fertilizers, as well as small industries (e.g. a small papermill), were found to be pollution sources for water in the Sichuan hills.
- Agricultural and domestic waste. Plastic waste was found to be a sizeable issue in Sichuan. Plastic mulch is never collected after crop harvest in the villages surveyed. It is left aside or plowed into the fields. Animals have died from plastic ingestion, and soil fertility is reduced. The problem is even more prevalent in mountain areas than in hilly areas since the use of plastic is has become more common there. Uncollected

domestic waste was also identified to be an issue, also in Sichuan. This waste issue was observed both around local people's houses and in tourism sites.

- Reduction of biodiversity. Intensive pesticide use, in addition to water pollution, appears to impact wildlife. Some of the pests are becoming uncontrollable due to loss of natural predators, for example in vegetable production in the Sichuan hills. Several invading weeds have been observed, also in Sichuan. While this may not have a direct link to human activities, it is a problem that farmers have complained about. The weeds are invading agricultural fields and increasing time required for manual weeding. In Yunnan, large areas of natural vegetation are cleared for the development of sugarcane. The development of some medicinal crops under forest cover, for example *Amomum tsao-guo*, also impacts biodiversity.
- Natural environment issues. High prevalence of local diseases, and extreme climatic events including drought and hailstorms, cannot be classified as environmental impact but their high occurrence in the research sites has been mentioned by the communities surveyed by the Sichuan team.

Identification of Some of Main Linkages between Poverty and Environment. The research in the 2 provinces has not led to a systematic description of poverty-environment linkages since its main purpose was to prepare a poverty and environment handbook and checklist. The field survey has nevertheless shed interesting light on a number of local features in these linkages. These features can be divided into the 6 following categories:

- Negative environmental impact from subsistence activities. Two of the main features observed in Sichuan in this category relate to traditional housing styles and animal raising. In the arid Minshan valley and in the Sichuan hills, houses now have a brick structure and a new house only requires 5 cubic meters of timber. In comparison, traditional houses on the Western plateau require around 60 cubic meters of timber from tall old trees. In the Liangshan mountains, the free-ranging pigs erode soils and pollute water sources.
- Unsustainable use of natural resources. The main features observed on the Western Sichuan plateau relate to unsustainable management of high-altitude grassland and to overharvesting of wild plants for sale. Another issue in this category is continuing population growth among some of the ethnic groups. In Sichuan, in the Liangshan mountains, the number of households in one village surveyed has been multiplied by 6 since the 1950s. Over the last half century, outmigration has been very limited in this region and agricultural production has mainly focused on grain crops, requiring ever larger areas of farmland. Population continues to grow in spite of population policies. In Yunnan, high population density was found to impact resource management in two counties: the Northeast county, where soil erosion and lowered soil fertility was observed in the poor villages that are located at high elevations and still rely on cropping, and the karst county with its low vegetation coverage, thin soil layer and important water deficits. Opening to the outside was found to be the main cause for pressure on natural resources in Deqin county in Northwest Yunnan. Local people used to live relying on the rich natural resources, but today transportation and communication have improved rapidly and outsiders' demands on local resources is increasing.
- Traditional cultural features of value to environment protection. The research teams have collected many statements showing positive impact of traditional cultures on the environment. The statements collected mostly relate to preserving forested sites, individual trees, wildlife, minerals and landscapes. All ethnic groups as well as the Han people in the Sichuan hills have made statements in this regard.
- Negative impact of environmental protection on the poor. The research team in Sichuan has used the opportunity of the field surveys to document the impact of the major environmental policies affecting Southwest China's uplands on poor communities' livelihoods: (a) the natural forest protection program (and the related

logging ban), (b) construction and strengthened management of the nature reserves, and (c) the conversion of sloped farmland to forestry. The team found a balance between positive and negative impact on livelihoods from the land conversion policy in the four villages studied. It found that the situation around the 2 nature reserves observed was changing, with increasing attention from the nature reserves to the improvement of local livelihoods. Conversely an absence of positive impact on communities from the natural forest protection program was observed. In Yunnan, the two surveyed villages located around nature reserves were found to face severe restrictions in resource access. In both provinces, wildlife damage on crops has become an issue around protected areas and local governments do not have a budget for compensation.

- Poverty reduction activities designed to improve the environment but having an opposite result. These cases were observed in both provinces and always relate to tree planting. In the wetland nature reserve in NE Yunnan, trees were being planted. This was reducing the wetland area and threatening bird habitat. In Lancang county in SW Yunnan, eucalyptus was planted under the land conversion program in cooperation with a large paper pulpmill. The research team found that this could impact biodiversity in the area. In the Sichuan hills, a poverty reduction project to develop fruit trees failed due to the use of an inappropriate variety. Farmers have been asked not to cut the trees even if they are left unmanaged in order to maintain the forest cover rate.
- Development of intensive agriculture. Development of intensive agriculture was observed in the 2 Yunnan counties with flatter landscapes (the NE and SW counties) as well as in the Sichuan hills. In Yunnan, several economic development projects are introducing different high-production crop varieties that generally require high application of chemical inputs. In Sichuan, application levels for pesticides and chemical fertilizers are already high in the hilly region. Seasonal migration leads households to rely less and less on organic manure, and more and more on external inputs. Plastic mulch is an issue both in the poorest subsistence villages and the relatively less-poor ones.

The Fuelwood Issue. In Sichuan, now that the logging ban and the natural forest protection programme are in place, fuelwood and timber for house building are the only sources of timber consumption in the region and are all the more visible. The research does not conclude to whether continuing fuelwood collection has an impact on the environment, but it describes how the limited resources are a problem in local livelihoods. Fuelwood use was identified to be an issue in 3 of the 4 villages in Sichuan (the fourth one has a programme to use electricity for cooking – see box below). Richer natural villages use electricity or coal but others all face problems. With traditional lifestyles at higher elevations, households consume 5 to 10 tons per year of fuelwood. In the arid Minshan valley, where fuelwood resources are very limited, some villages resort to using plastic bags, old tires and straw. In the Liangshan mountains, where resources are abundant but access is restricted, the community surveyed close to a protected area turns to burning bushes and straw, but also keeps cutting fuelwood inside the protected area. In Yunnan, the team has described how fuelwood saving has become a focus concern of poverty alleviation activities, and biogas the standard technology used, even though justification or viability at local level may be questionable.

Environmental Impact of Projects Listed in Village Development Plans. In Sichuan, the research team has divided the 55 poverty reduction activities from the standard provincial list into 5 categories, from positive environmental impact to severe negative environmental impact (see below). Occurrence of poverty reduction projects with severe environmental impact has been observed neither in the 4 villages studied in Sichuan nor in the provincial menu of standard projects. Conversely, projects identified by the research team as “win-win” are starting but are not widespread practice, while the majority of projects can be assessed as projects with potentially substantial negative impact. In Yunnan, instead of a systematic assessment of potential environmental impact from poverty reduction projects, it was pointed out that negative impact often needs to be paid attention to in projects where it might not be expected. Tea, for example, even when grown in an environmentally-friendly manner, might lead to intensive wood cutting to provide energy for on-site primary processing. Projects promoting new housing made of bricks and tin roofs to replace traditional housing in SW China appear to have a similar impact since farmers consume fuelwood to make bricks. In addition, poorer households are asked to improve their houses even if they cannot afford the new material. They cut additional timber to do so. The Yunnan team also makes special mention of sugarcane as a poverty reduction project category with negative environmental impact.

Four successful examples of attention to the environment on the Western Sichuan plateau. The examples collected on the plateau all point to the fact that protecting the environment is compatible with poverty reduction even in the harsh environment of the plateau and under the stress on local finance that the logging ban has created in the end-1990s. In all four examples, it is striking that none of the successful solutions were standard poverty reduction projects. They were instead innovative projects such as the introduction of appropriate technology taking into account the specific features of the local environment, or the development of new management systems (protected areas and community management). This demonstrates the value of going beyond the standard list of poverty reduction projects.

Example 1: Wetlands protection. In the 1990s, the marshes have been exploited in nearby counties to dig peat for sale to the market. In the county studied, digging peat was contemplated when the logging ban disrupted the county budget. The idea was finally rejected due to its negative environmental impact. The wetlands in the county are about to become a protected area. The creation of the protected area will generate alternative income.

Example 2: controlling overgrazing. In 2003, the township started to implement the county policy to limit overgrazing. The limit was set up at 10 heads of cattle per capita, and improved animal raising technologies were extended at the same time. The resulting incomes from animal husbandry are expected to increase and stabilize.

Example 3: community management of medicinal plants. In the village studied, outsiders from other villages or other counties used to come and collect two medicinal plant species that have biodiversity value. Nowadays local residents charge a fee to outsiders and control quantities harvested. Incomes from these resources will be more sustainable in the future.

Example 4: alternative energy resources. After having tried all kinds of alternatives including biogas and solar energy, the local government found that shifting to using electricity for cooking was the most appropriate solution in this high elevation environment.

Environment in Actual Implementation of Development Plans. In Sichuan, it was noted that the general shortage of funds and particularly lack of access of households to poverty reduction loans result in mostly environmentally benign projects being implemented such as small community infrastructure.

Environment in Other Projects in Poor Projects. In Sichuan, local governments in poor areas are eager to attract outside investors. In the Sichuan hills, some larger-scale projects take place under a poverty reduction label. Environmental impact can be substantial. One example observed is a large pig farm with no animal waste management facility. The need or potential for formal environmental impact assessment in these cases has not been mentioned during the research.

4. Outcomes

4.1. Publications

The research teams have reported findings from the villages surveyed, have drafted a handbook for poverty reduction staff, and made recommendations for future incorporation of environment into poverty reduction work. The Yunnan case study report discusses poverty and environment in each village. An overall report summarizes findings and provides recommendations. The Sichuan report provides a summary of issues observed as well as a ranking of environmental impact from the standard poverty reduction activities.

In both Yunnan and Sichuan, a handbook on the incorporation of environmental concerns into poverty reduction programs has been published, and a checklist has been produced to allow quick reference to environment in village poverty reduction plans.

Yunnan Handbook: “Guiding Manual to Coordinate Poverty Alleviation and Development with the Environment”. In Yunnan, the team decided to produce a manual that invites readers, in a flexible manner, to rethink how poverty relates to environment. The manual starts with an introduction to environmental issues in relation to the agricultural projects that are at the core of poverty reduction programs. A definition of poverty broader than the “income poverty” concept generally used by poverty staff is then proposed. Four main preconceived ideas regarding poverty and environment linkages are underlined. It is proposed to use instead three improved statements:

- Environment is a basis for poverty reduction,
- There is no contradiction between environment protection and poverty reduction, and
- Environmental protection can only be effective when it is based on local communities.

The second section provides guidelines to incorporate environment at four stages of any poverty reduction project. At the design stage, it is proposed to make environment one element of the participatory appraisal through a sequence of 4 tasks:

- Collecting information relating to environmental resources,
- Assessing linkages between local farming and the environment,
- Assessing linkages between local living conditions and the environment, and
- Identifying local knowledge in relation to the environment.

At the design and implementation stages, it is proposed to mainstream attention to the environment and to make good use of local environmental knowledge. The handbook recommends avoiding a black and white approach whereby some projects such as goat raising would be considered as bad for the environment, and others such as biogas would always be considered as a good answer. Finally, environment should be made an important element in the monitoring and evaluation of poverty reduction projects. The WWF comprehensive conservation and development project in Baimaxueshan in NW Yunnan is described as an annex. Finally an example of environmental action plan in one village in the Jinshajiang valley (Dongchuan county), based on forestry sector activities, is provided.

Sichuan Handbook and Checklist: “Environmental concerns in Poverty alleviation Projects: a Functional Guidebook for Poverty Reduction Staff”. The handbook starts with providing an overview of the environment, poverty and sustainable development concepts. It continues with a discussion of 8 preconceived views on poverty and environment. In the rest of the

guidelines, the Sichuan team has decided to take an approach that differs distinctly from the Yunnan approach, with a strong focus on environmental issues and practical guidelines on how to avoid environmental impact in poverty reduction projects. The list of 55 “standard” poverty reduction projects in Sichuan is divided into five environmental categories, and positive and negative impacts are summarized for each type of poverty reduction project:

- Win-win projects: these projects should be encouraged,
- Projects with slightly negative environmental impact: environment should be paid attention to during project design,
- Projects with potentially substantial negative environmental impact: environment should be paid attention to not only during design but also during implementation and follow-up,
- Projects with severe negative environmental impact: these projects should be forbidden, and
- Neutral projects: attention to environment is not needed.

A set of 4 principles is then proposed for the incorporation of environment into poverty reduction activities:

- Encouraging environment-oriented poverty alleviation to build a prosperous community,
- Limiting environmental degradation, a critical condition for sustainable elimination of poverty,
- Enhancing community self-reliance and initiative, and starting with easy-to-achieve improvements,
- Carrying out environmental protection and poverty reduction plans and projects in a combined manner at village level.

The final section of the handbook is a checklist in four steps:

- Step 1: planning. At this stage, the staff should check through a number of questions whether they have (a) identified existing environmental issues in the community, (b) started to identify ways of addressing environment in the community; (c) classified the proposed development activities according to their environmental impact, and (d) eliminated those with severe negative impact.
- Step 2: implementation. At this stage, the staff should check through a number of questions whether the construction works or the recommended production technologies are taking into account potential negative impact.
- Step 3: follow-up. Similarly, the staff should plan to address potential negative impact after the works are completed or when the production project closes.
- Step 4. the staff is invited to summarize answers from the three above steps into an “action plan for poverty reduction in coordination with the environment at village level”.

Attached to the checklist is a quick reference form with 24 questions.

Consultation Workshops. Two workshops were organized at the end of the research, one in Yunnan, one in Sichuan. Around 25 persons from provincial and county levels participated in the Yunnan workshop. Two international consultants from Thailand were invited to share information from their country. Three senior government officers from the Yunnan Poverty Alleviation Office, the Yunnan Forestry Department and the Yunnan Environment Protection Bureau took part and provided comments during the workshop. One third of participants were from development agencies including poverty alleviation, one third from environment and conservation agencies, and the remaining were from project research teams.

4.2. Dissemination and Potential Impact

Dissemination of the Publications. WWF has strengthened partnership with the provincial poverty reduction administration in the two provinces. The provincial Poverty Reduction Leading Groups have published the guidelines themselves. This provides a good basis for dissemination of documents and ideas to staff at provincial, county and township levels.

Potential Impact. The Sichuan and the Yunnan guidelines have been printed in disseminated. In Yunnan, 2000 copies of the guidelines have been printed and they have been disseminated to 145 counties in Yunnan. Using these guidelines for future project planning has been made a requirement from the Yunnan PAO. Two important training courses have been held in 2004 and 2005 for managers and staffs of county poverty alleviation offices. In 2005, senior county government staff from 80 key poverty-reduction counties too part in the training workshop. Furthermore, the WWF poverty and environment project continues to work with the Yunnan Poverty Alleviation Office. Six pilot sites have been selected. WWF is starting to provide technical support on how to use the guidebook in practice, and will monitor outcomes.

5. Discussion

5.1. Recommendations Made by the Research Teams

Advocating for a broader concept of environment (Yunnan)

Forest protection, afforestation and fuelwood saving technology tend to be considered as the main methods deserving attention for environment protection in Yunnan. The research leads to recommend instead the dissemination of a broader concept of ecological system that would include not only soil protection but also water resource protection, biodiversity protection or disaster preparedness. This would “open minds” when selecting poverty reduction projects, and more diverse activities could be proposed.

“Development” should be used instead of “exploitation” in poverty alleviation programs (Sichuan)

In Chinese, the phrase used for development in poor areas is “kaifashi fupin” (poverty alleviation based on resource development). Initially, this phrase was defined in opposition to assistance-based poverty alleviation. However the word “kaifa” -which is difficult to translate into English - conveys a meaning of resource exploitation. “Development” (fazhan) should be used instead of “kaifa”.

Base environmental management on the improvement of poor communities’ livelihoods (Sichuan and Yunnan).

Improving the environment in poor areas is not only a contribution of poor areas to the whole society’s demand for an improved environment. It is first and foremost a condition for poverty reduction. For example polluted waters will impact poor people’s health and reduce their chances of getting out of poverty. Some of the income generation activities can be an entry point for environment protection. But the main opportunity is to combine public infrastructure with environmental rehabilitation needs. In this process, only when local people are interested in the environment and fully participate in the process can the results be long lasting.

Update existing village plans to incorporate environment (Sichuan)

The village plans that were completed early often were tentative exercises. Many of them have been more “wish lists” than feasible action plans. At the same time many villages have only received a small proportion of the funds initially planned. For both these reasons there is a need to update existing plans, and there is an opportunity to incorporate environment in new, more focused and action-oriented village plans.

Incorporating environmental concerns into village plans should be done in a practical manner through the existing project cycle (Sichuan and Yunnan) and small environmental grants should be made available to villages (Sichuan)

The checklists prepared by each team should be incorporated into the routine work of poverty reduction staff from local preparation to review at provincial level. The standard forms that villages fill in when preparing their plans should be modified to incorporate environmental concerns.

Small village grants should be made available to allow them to actually implement a number of actions to manage the environment better during the implementation of the village plan. The actions that the village community agrees to undertake through this grant should be recorded in a village environment action plan.

Allow for demonstration sites, innovative projects, local adaptation and further research (Yunnan and Sichuan)

Small-scale practical demonstrations should be funded to disseminate good practice. Relevant topics range from collecting plastic mulch waste to making good use of traditional knowledge. The village plans prescribe a standard list of projects and have omitted projects that can have beneficial environmental impact. This is especially the case of natural resource management projects. One example cited in Yunnan is improved pasture management. More flexibility is needed to identify projects. The current lack of flexibility in the poverty reduction menus reduces potential positive environmental impact. For example in Yunnan, the province-wide programs for new housing and biogas pits are unlikely to be appropriate environmental solutions in the diversified upland areas. Finally, further operational research is needed on poverty and environment. This would lead to provide more solutions to villagers and to promote understanding of sustainable development among local officials. Many practical topics for research can be identified: how to prevent wildlife damage on crops, how to develop organic agriculture in poor communities that cannot afford to pay for certification, or how to manage resources in a sustainable way while deriving an income from them. More theoretical research, for example in ecological grant policies, remains needed too.

5.2. Discussion of Findings and Outcomes

This section is a discussion by the international consultant of the research findings and outcomes.

Oversimplifications about Poverty and Environment Linkages. The teams have rightly decided to make the discussion of preconceived ideas an important element of their handbooks for poverty reduction staff. Among the stakeholder views identified through the research, some are neither specific to the Chinese context nor to poverty reduction staff in China. However poverty reduction in Southwest China is perhaps a case where these preconceived ideas have significantly shaped programs and policies. An added-value of the research is to make these preconceived views more visible. Numerous examples that contradict these views and demonstrate that reality is more complex have been collected from the research sites.

Attention to Environmental Issues or Attention to Opportunities. The poverty & environment nexus approach encourages balanced attention to issues and opportunities related to environment. The examples listed by the Sichuan team for the Plateau villages mostly relate to opportunities. The Sichuan team has nevertheless focused their handbook on environmental issues. This focus may be more appropriate to facilitate attitude change among poverty reduction staff since the research has identified a very low level of understanding of environmental matters among the staff. An additional rationale for doing so, as underlined by the Yunnan team, is that local staff tend to equate environment with forestry programs, and therefore to oversee environmental aspects in other sectors. They

also tend to oversee environmental issues in the forestry sector itself. The fact that planting trees can have negative environmental impact when it generates erosion or adversely impacts biodiversity somehow remains a new idea for many local staff.

Poverty and Environment Linkages in Southwest China. Despite the above set of good reasons for focusing on environmental issues, it should be noted that a specific feature of poor upland areas in Southwest China is their high potential to make environment an opportunity for local area development, and at the same time the difficulty to discuss these very opportunities. The teams themselves have devoted little of their work to environmental opportunities despite repeated encouragement to do so.

Roughly speaking, poverty & environment linkages in China's upland areas fall into not less than 8 categories:

1. Negative impacts of past economic development and past policies on poverty and on the environment. This relates especially to logging by the State forestry sector in several of the counties surveyed. In earlier decades, restrictions on rural migration also played an important part; they increased local pressure on resources in a rapid population growth context.
2. Negative impacts of environment protection and rehabilitation on poverty. Development opportunities in poor villages may be limited because of environmental policies and programs, especially (a) protected areas and (b) the natural forest protection program.
3. Negative impacts of poverty on the environment. Subsistence agriculture and livelihoods consume natural resources. This may, although this is often not the case, generate negative impact on the environment.
4. Positive impact of poverty on the environment. Conversely, traditional livelihoods have often been a factor in areas with low population densities contributing to preserving the environment. Poor communities often have retained cultures that have environmental protection elements.
5. Negative impacts of poverty reduction on the environment. Economic development activities in poor villages often generate negative impact unless they are managed appropriately.
6. Positive impact of poverty reduction on the environment. Conversely, improving livelihoods may reduce unwanted reliance on natural resources.
7. Positive impact of environmental rehabilitation on poverty. Projects that both improve the environment and reduce poverty are win-win solutions. They are regarded as priority investments by poverty & environment analysts.
8. Positive impact of environmental protection on poverty. Good environmental quality is an asset for economic development in many mountain areas, e.g. for tourism, specialty products, etc.

The importance of linkages 1 and 2 in Southwest China tend to absorb discussions, and local instances where linkages 3 do prevail tend to be overestimated. Linkages 4 are more and more recognized thanks to pilot projects in protected areas. Linkages 5 are the focus of the Sichuan handbook. Linkages 6 are more difficult since a few sizeable programs are under implementation, notably the biogas program, and tend to be the focus of all discussions. The Sichuan team has chosen to list a number of items under this category of linkage, while the Yunnan team has preferred to leave the door open for discussion. The Sichuan team has made innovative work by identifying positive linkages 7 in the land conversion program: while linkages 2 under this program had already been discussed at length in China. All categories of linkages have therefore been analyzed in the research except linkages 8. The Yunnan team briefly addresses it for community resource management and the Sichuan team just mentions the potential of organic agriculture. Linkages 8 are nevertheless the basis for sustainable development in upland areas in many regions of the world including China. The development of environmental quality, for example through (a) tourism around protected

areas and in other regions of interest, and (b) organic or other healthy products of mountain origin, are leading trends in upland areas. They may be limited to specific locations but they can have a trickle down effect on other upland areas areas.

Menu of Standard Poverty Reduction Activities. The Sichuan team has structured the handbook around a long list of standard poverty reduction activities. This is a rational answer to the fact that villages are asked to select their activities from this rather fixed menu of activities. However, as pointed out by the Yunnan team, the fixed nature of this menu leaves little room to innovative activities. A related issue is that most standard activities can have negative or positive impact depending on the technology that is promoted. Of particular interest here is animal raising. Attention to animal waste is increasing in China in the framework of the Ministry of Agricultural GAP (good agricultural practice) program. The animal raising projects in Sichuan have therefore been assessed as having potential negative environmental impact. Yet small-scale animal raising in the poor areas is by and large environmentally friendly, provided carrying capacities are not exceeded. Another example is tea. Standard tea requires intensive pesticide application and can therefore be considered as having negative impact. However a lot of tea in China is already organic so that environmental impact, at least from pesticide applications, is limited.

Recommended Next Steps. The research provides an excellent basis to allow environmental concerns to become a routine element in poverty reduction projects. Capacity at all levels will be built through this process. In this process, a few points require attention in addition to the recommendations formulated by the provincial teams:

- What or how. In small-scale poverty reduction projects, the issue is not so much WHAT the poverty reduction project is, but HOW it is carried out. This should be remembered whenever an environmental impact assessment of the poverty reduction projects is made. Training courses for poverty reduction staff can be the venue to disseminate this new culture of attention to the technical contents of poverty reduction activities.
- Environmental impact assessments. International projects in China's poor areas generally carry out environmental impact assessments and prepare environmental management plans. These environmental impact assessments are largely of a strategic nature and provide recommendations that have broad relevance. For example, in crop production, projects generally require compliance with use of non-toxic pesticides only. Environmental guidelines for tree planting are also available from forestry projects. These documents can be used as a reference by the poverty reduction administration.
- Environmental awareness and other projects with limited investment. Budgetary constraints are an overwhelming constraint in village poverty reduction plans and may remain so in the future. This is a good reason to promote activities other than "village investments". Environmental awareness, or pilot demonstrations in improved environmental management fall into this category. The menus of poverty reduction projects do have a "training" category. This category could be described in much more detail to allow for all types of environmental awareness activities. One can hope that the recent successful environmental awareness activities in Sichuan will lead to an expansion of such activities. Again, training courses for poverty staff could be a venue to help staff start and facilitate related activities.
- Inventing win-win solutions around protected areas. Opportunities to make environmental protection an opportunity for local area development and therefore for poverty reduction do exist. A starting point, already experienced by WWF, is probably

for poverty reduction staff to work in a coordinated manner with nature reserves in the design and implementation of local programs. This is another example in which identifying solutions will require going beyond the current menu of poverty reduction projects.

Annex 1. Research Team and Activity Schedule

Sichuan Province

- LING Lin, WWF China, Sichuan Province Office, Sichuan research coordinator
- HAN Wei, in charge of field work
- DU Ling, Sichuan Province Poverty Reduction Training Center
- AI Yingwei, Sichuan University
- WANG Honghong

Month	Activity
July 2004	Research project launch
August-November 2004	Field work
March 2005	Provincial workshop

County Administrative village	Ruo'ergai County Zhuotang	Meigu County Texi	Yilong County Huzui	Maoxian County Weimen
Interviews	15 households in 5 natural villages 1 credit cooperative staff 1 religious leader	16 households in 4 natural villages 2 traditional leaders	25 households in 9 natural villages	12 households in 2 villages
Group discussions	Village discussion with 5 village cadres & farmer representatives	Village discussion with 3 cadres and natural village heads	Village discussion with 3 cadres	Village discussion with 4 cadres
County and township interviews	10 interviews	12 interviews	13 interviews	11 interviews
Province and prefecture level interviews	14 interviews			

Yunnan Province

- WU Yusong, WWF, Yunnan Province Office, Yunnan research co-ordinator
- A Zha, Yunnan Province Poverty Reduction Office Director, head of edition committee for the Yunnan guidelines
- WANG Zhi, Yunnan Province Poverty Reduction Office Director, deputy head of edition committee for the Yunnan guidelines
- WU Sui, Yunnan Province Poverty Reduction Office, Planning and Finance Office Director
- WU Jianzhong, Yunnan Province Poverty Reduction Office, Planning and Finance Office Deputy Director
- CHENG Fan, Yunnan Province Environmental Assessment Center
- ZHAO Yaqiao, Center for Community Development Studies, Yunnan Academy of Social Sciences
- ZHANG Lichang, Center for Community Development Studies, Yunnan Academy of Social Sciences
- CAI Hui, Rural Development Study Center, Yunnan University
- With the participation of Prof. Anan Ganjanapan and Uraivan Tan-Kim-Yong of Changmai University, Thailand.

Yunnan and Sichuan Provinces

- WANG Chaogang, World Bank Beijing Office, Co-Task Team Leader
- Jostein NYGARD, the World Bank, EASES, Co-Task Team Leader
- Claude SAINT-PIERRE, Tercia Consultants, international consultant

Month	Activity
2003	Launch of IGPEW program
March 2004	Start of methodology support to Sichuan team
June 2005	Production of Southwest China reports

Annex 2. Poverty and Environment Indicators

Sichuan Province

Region County	Western Plateau	Southwest Sichuan, Liangshan M'tains	Sichuan Hills	Northwestern plateau Minshan valley
County Township Administrative village	Ruo'ergai County Baozuo Zhuotang	Meigu County Jingyetexi Texi	Yilong County Huama Huzui	Maoxian County Weimen Weimen
Human environment	Tibetan ethnic group	Yi ethnic group	No minority ethnic groups	Qiang ethnic group
Environmental challenges	Close to nature reserve	Next to nature reserve	Drought	Arid valley

Yunnan Province

Region County	Southwest Yunnan	Northeast Yunnan	Southeast Yunnan	Northwest Yunnan
County Township Administrative village	Lancang County Jiuqing Township Shuifang Village	Huize County Zehai Town Duofa Village	Guangnan County Zhuji Town Liji Village	Deqin County Xiaruo Township Shiba Village
Human environment	Hani ethnic group	Yi ethnic group	Zhuang and Miao mixed ethnic groups (the area is predominantly Zhuang)	Lisu ethnic group (the area is predominantly Tibetan)
Physical environment	Sub-tropical climate	Yunnan-Guizhou plateau High elevation	Karst mountains Within nature reserve	Within nature reserve
Poverty challenges	Shifting cultivation is still practiced	High population density Cold mountain climate	Limited potential of karst areas	Cold mountain climate
Environmental challenges	Shifting cultivation is still practiced	Fragile and degraded environment Steep slopes, low soil fertility	Fragile environment Low vegetation coverage, thin soils Lack of water	Preservation of rich natural resources in relation with nature reserve

Annex 3. Available Reports

Yunnan Province

WWF China and Yunnan Office of the Leading Group for Poverty Reduction (LGPR) 2004. Guidelines for the Coordination of Poverty Reduction & Development with Environment. 42 pages. In Chinese.

CAI Kui and ZHAO Yaqiao 2003. An Assessment of Development and Environment Linkages in Village-Based Integrated poverty Alleviation Projects in Yunnan Province, PR China. Rural Development Study Center, Yunnan University and Center for Community Development Studies, Yunnan Academy of Social Sciences. 25 pages, in English and Chinese.

Center for Community Development Studies, Rural development Study Center and Yunnan Province Poverty Reduction Office 2003. Assessment of Relationships between Comprehensive Village Poverty Reduction Plan Implementation and Environment in Yunnan Province: Case Study Field Work Report. 55 pages, in Chinese.

Sichuan Province

Sichuan Community Capacity Building Center 2005. Environmental concerns in poverty alleviation projects: a functional guidebook for poverty reduction staff. 45 pages, English and Chinese versions, including a checklist. Funded by WWF and the World Bank.

Sichuan Community Development Consulting Service Center 2005. Village-level comprehensive poverty reduction plan and environment protection: survey on linkages between the Sichuan rural poverty reduction action plan and environment protection. 58 pages, in Chinese. Funded by WWF and the World Bank.

Yunnan and Sichuan Provinces

World Bank and WWF China 2005. Guidelines to Incorporate Environmental Issues in the Implementation of Village Development Plans. With Checklists for Provincial and Local Poverty Reduction Staff. Synthesis of the Yunnan and Sichuan handbooks. Prepared by Tercia consultants, Montpellier, France.