WATERSHED DEVELOPMENT BEST PRACTICE REVIEW

for China Watershed Management Project (CWMP)

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We trust they find this report contributes to the further refinement of practices supporting sustainable development and poverty alleviation in the Peoples Republic of China.

However, any errors and omissions inherent in this final documentation of our literature and field research and the findings of this review are ours and ours alone.

John Dalton and Cai Mantang

Consultants
WATERSHED DEVELOPMENT BEST PRACTICE REVIEW

for China Watershed Management Project (CWMP)

1. Introduction

1.1 Loess Plateau Projects (LPP)
The often rugged Loess Plateau is composed of deep wind-blown sediments laid down over geological time that extend over six provinces of northern and western China.¹
The natural resources of the Plateau have been so intensively utilized over thousands of years that it is now denuded and environmentally degraded due to extensive soil and water erosion causing loss of fertile land in the upper reaches of the Yellow River Watershed and sedimentation and flooding in the lower reaches in a cycle of irregular rainfall and frequent droughts and floods.

Lack of irrigation, soil erosion and limited soil fertility due to low organic matter further constrain agricultural production in the Loess area. As a result, livelihoods in these environmentally fragile areas are precarious; lack of food security and lack of access to drinking water are still common problems. Without sufficient opportunities for non-agricultural employment, rural areas face high rates of out-migration. The degraded natural resource base is a major factor in the poverty and reduced livelihood opportunities of the areas rural population. The degraded land of the Loess Plateau is potentially fertile but requires management to improve its productive capacity.

From 1994 to 2005 The World Bank has supported two Loess Plateau (LP) Watershed Rehabilitation Projects involving four of the six Loess Plateau provinces.² In addition to reduced sedimentation in the Yellow River, project villages exhibit significantly reduced soil erosion and improved agricultural productivity with evidence that this leads to increase incomes and improved livelihood opportunities for local communities.

Although the experiences gained from these projects over the last decade offer valuable lessons for future Chinese policies and programs, the mechanisms in the Bank-supported projects do not enable a comprehensive evaluation of the poverty reduction benefits or identify how project approaches, such as increased participation by villagers, can be strengthened to benefit poor and particularly vulnerable groups.
It is also difficult to determine how project activities might be mainstreamed and institutionalised so they continue beyond the project period.

1.2 China Watershed Management Project (CWMP)
It is in the above context that the China Watershed Management Project was established by the Department for International Development (DFID) under a Trust Fund and Memorandum of Agreement with the World Bank to provide grant assistance to help the bank, other donors and the Chinese Government better understand the impact of poverty reduction in watershed management and rehabilitation programs.
The specific objectives of the Trust Fund are to:

¹ Gansu, Qinghai, Ningxia, Shaanxi, Shanxi and Inner Mongolia
² Gansu, Shaanxi, Shanxi and Inner Mongolia
(i) examine the contributions to poverty reduction of Bank supported projects;
(ii) identify how short-comings in these projects can be improved;
(iii) draw out and develop best practice approaches in watershed management;
(iv) strengthen the capacity of existing Bank project management offices and other Chinese
government and non government organizations.

The objectives of CWMP are to:

- help evaluate the impact on poverty of the World Bank-supported Loess Plateau project interventions;
- develop best practice models for watershed management which emphasise poverty reduction and the participation of the poor;
- help relevant future Chinese and other donors’ programs benefit from the experiences gained and adopt the models developed.

As a result of the linked challenges confronting watershed management in China, namely, sedimentation and flooding, water scarcity and rural poverty, watershed management and poverty alleviation are urgent issues and high priorities for national and international support. These challenges are particularly severe along the upper and middle reaches of the Yellow River and typify the widening gap between the living standards and rate of development of western and eastern provinces.

Despite entrenched tendencies to follow set guidelines and focus on achievement of hard physical outputs there is an apparent recognition across departments with responsibilities in watershed management and poverty alleviation that participatory approaches are required if rural communities are to be engaged and poverty alleviation efforts made more effective.

This is the context in which CWMP is placed with its main objective being to influence thinking and learning on integrated watershed management with a specific focus on improving natural resource management and rural poverty.

### 1.3 Approach to this Assignment

#### 1.3.1 Objective

By contributing directly to Output 2 of CWMP (i.e. Best and new practice models, which emphasise poverty alleviation, developed) this assignment covers two intended activities: (i) the review of watershed management experience, and (ii) the development of best practice models.

The objective of this assignment is to generated best practice models for planning and implementing integrated watershed management that effects natural resource management while emphasising poverty reduction, including identifying how physical works and other activities can be implemented to most benefit the rural poor.

#### 1.3.2 Methodology:

During the inception phase the Review Team began to draw out from international and national watershed development project experiences the main elements of successful watershed development practice which were summarised using a development process framework that aligns with the usual four-step process common to all watershed development projects (namely, *identification, design, implementation* and *evaluation*).
This framework was also used to briefly review the LPP to identify areas of good practice relating to key issues and gaps or opportunities for improvement, particularly in relation to LPP’s poverty alleviation and capability building activities. These were analysed more deeply in a second series of detailed project field reviews in key provinces which generated recommendations and ‘models of best practice’ in watershed rehabilitation supported by case studies.

The ‘models’ emphasise natural resource management poverty reduction and participatory approaches to implementation, gender equity, and targeting the poor and disadvantaged that can be used in relevant Chinese and donor programs addressing watershed management in China including possible future Loess Plateau projects. The highlights of this review as to best practice and were presented to the 2nd International Yellow River Forum in October 2005.

1.3.3 Intended Outputs:
This assignment involves two sets of activities and outputs:

(i) Review of Experience: To identify potential good examples in countries with Bank-supported and other donor projects (ongoing and planned), particularly in relation to the following issues:

- watershed planning, including participation by primary stakeholders as appropriate at each stage of the planning cycle;
- approach to gender;
- physical implementation;
- targeting of poor households;
- monitoring and evaluation;
- lessons learned and feedback.

A more detailed review of LPP in a few selected counties in China focusing on the above issues to identify good practice and gaps. This activity will involve:

- initial visits to project counties and project sites and discussions with PMOs, CMOs and village communities;
- identifying key areas and issues for more detailed field survey;
- detailed field surveys and discussions to clarify links between practices and outcomes.

(ii) Best Practice Models: After reviewing international and local experience relating to best practice, a more detailed field review of LPP and other Chinese Government and donor-supported projects will enable the development of best practice models for application in future Chinese and donor programmes. Models will emphasise implementation processes, particularly participatory approaches which:

- encourage participation in watershed planning and management cycles;
- target poor households;
- encourage gender participation;
- monitor and evaluate poverty impact; and
- build institutional capacity to implement and expand best practices

Best practice models will adopt integrated approaches to physical interventions and other ‘softer’ aspects of implementation as well as consider the integration of additional services that enhance poverty reduction but which are outside the remit of the Loess Plateau Projects. The latter may include drinking water supply and sanitation to improve primary health, community-based cooperatives for services
delivery (credit, inputs and marketing) and processing to capture added value for diversifying rural livelihoods. The relative priority of such services for poverty reduction and the way in which they relate to best practice models will be identified.

These outputs will impact on other areas of CWMP and enable piloting of new approaches, strategies and techniques for managing the steps in LPP’s watershed development process in areas such as:

- contracting the facilitation of village development to NGOs;
- devolving watershed development planning and implementation to farmers, villagers and county level agencies and administrations;
- preferentially targeting poor households and women;
- using integrated area development planning at county level to coordinate facilitation and services delivery to project villages and collaboration with other projects in the same locality;
- using experiential learning and feedback to build local capacity and support; and
- creating opportunities for synergisms with other projects and donors, particularly in capacity building and policy development.
2. Conceptual Framework

Watershed development encompasses a very broad and evolving field of wide ranging issues, knowledge and activities relating to natural resource management, rural development and poverty alleviation. To encompass this wide range and be a useful tool for analysing best practice in watershed development requires a conceptual framework with three dimensions. The first two elements can be arranged as a table to form a two dimensional ‘frame’ or ‘screen’ through which the (watershed) development process can be viewed and analysed as to principles, approaches, strategies and techniques being applied at each step in the process. The third element reflects the hierarchies of governance or level of development management and provides the framework’s third dimension.

2.1 Development Process:

The first and foundational element of the three-dimensional conceptual framework is the iterative four step development process. It is based on the experiential learning cycle of “action – reflection – action” which is adapted to accommodate the four basic steps in the process of any development project (i.e. design, implementation, monitoring, evaluation, see Figure 1 below).

The development process begins with a multi-sectoral assessment of the current situation be it at farming family, village, township, county, provincial or national level. Situation assessment is aimed at identifying the priority issues, problems and development constraints in the environmental, economic and social sectors. It then involves planning decisions as to what needs to be done to improve the situation.

This planning process is usually best done in two stages: Firstly, a long term, overall “framework plan” is generated which identifies what needs to be done and in what order based on agreed priorities. Then the initial annual “action plan” is generated which specifies activities, time frames and costs in some detail as well as how implementation will be monitored to track progress according to plan. The annual action plan is then usually broken down further into quarterly work programs that specify the tasks and duration of each activity, the main and support responsibilities for each task, and the detail inputs and costs involved in each activity.
The third step involves actual implementation of the various work programs with ongoing monitoring to identify problems as soon as they appear, the solutions applied, and what actually occurs during implementation.

The fourth step involves a review of the entire process particularly the implementation stage so as to learn from the experiences to date, to re-assess the situation, to revise the framework plan as necessary, and to prepare the next round of annual action plan and quarterly work programs.

This development process clearly reflects the requirement for managers at every level to be directly involved and for development management to be devolved to the local level so that rural communities become fully engaged to the point of empowerment (see Figure 2 below).

Figure 2: Stages of Community Engagement

The participation of managers at each level is essential for successful watershed development because it enables the development process to build the capability of individuals and the capacity of local institutions which is necessary if the development process is to be sustained and is to continue to function after the project period (i.e. be institutionalized and scaled up to impact on more of the entire watershed).

Table 1: First 2-Dimension Framework for Reviewing Watershed Development Projects

<table>
<thead>
<tr>
<th>Consistency of Practice:</th>
<th>Principles</th>
<th>Approaches</th>
<th>Strategies</th>
<th>Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Process:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1: Communication</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Stage 2: Consultation</td>
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<td></td>
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<tr>
<td>Stage 3: Participation</td>
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<tr>
<td>Stage 4: Empowerment:</td>
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<tr>
<td>Stage 5: Managing local</td>
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</tr>
</tbody>
</table>

The iterative development process should be viewed as an upward spiral (rather than a cycle) because the managers of the process and their institutions become increasing capable and empowered by
experiential learning. This capacity to continue to successfully adapt to the changing situation and thereby sustain development is the real objective and primary legacy of watershed development.

2.2 Consistent Development Logic:
The second element in the conceptual framework is the logical sequence of development perspectives that emerge from consideration of base principles involving specific approaches and related strategies which lead logically to appropriate and applicable techniques and methodologies (see Table 2 below).

<table>
<thead>
<tr>
<th>LEVEL:</th>
<th>ROLE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>macro -</td>
<td>Central policy-making level (with or without reference to meso and micro-levels).</td>
</tr>
<tr>
<td>meso - lower</td>
<td>Support service delivery level (with or without integration across sectors).</td>
</tr>
<tr>
<td>meso - upper</td>
<td>Support or supervise service delivery (with or without integration across sectors).</td>
</tr>
<tr>
<td>micro - lower</td>
<td>Family household (the real natural resource managers with or without secure access to the natural resource base they manage so as to generate livelihood).</td>
</tr>
<tr>
<td>micro - upper</td>
<td>Village community (a socio-economic unit, with or without distinctive boundaries demarcating the extent of the natural resources they can access and manage).</td>
</tr>
</tbody>
</table>

This framework focuses on the consistency of the logic of the principles, approaches, strategies and techniques applied at each step in the process. For example, the principle of gender equity is arguably best addressed during steps 1 and 2 of the development process (i.e. participatory situation analysis and framework and action planning, see Figure 1 above). Applying this principle leads logically to the approach of affirmative support for women’s groups and to the application of such strategies as facilitating the formation of women’s groups, and to the application of such techniques or methodologies as facilitating community access to micro-credit through women’s groups and/or facilitating women’s involvement in livestock raising by accessing micro-credit for purchase of seed stock.

2.3 Hierarchical Structures:
The third & final element of the framework is the pair of hierarchical structures comprising:

(i) the various levels of administration, governance or management often referred to as macro, meso and micro-levels as further explained in Table 2 below, and
(ii) the natural hierarchy of watersheds.

<table>
<thead>
<tr>
<th>Management Level:</th>
<th>Macro-level (policy)</th>
<th>Meso-level (support services)</th>
<th>Micro-level (NRM &amp; livelihood)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Process:</td>
<td>1. Situation Assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Framework and Action Planning</td>
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<td></td>
<td>3. Implementing and Monitoring</td>
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<td></td>
<td>4. Reviewing, Evaluating and Re-planning</td>
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</table>
In combination with the iterative development process the hierarchy of management provides a two dimensional framework for reviewing watershed development projects.

It focuses attention on each of the three major levels of development management which must undertake the development process in a manner appropriate to each level, i.e. the levels responsible for policy generation, support services delivery, and on-ground activities relating to environmental management and poverty alleviation.

The hierarchy of watersheds is formed as water drains down a watershed or catchment from a number of zero-order micro-watersheds and combines to form a small sub-catchment, a number of which combine to form a branch, a tributary, etc. (see Figure 3 below).

2.4 Decentralizing Watershed Development

Although these conceptual frameworks can be applied at each level of governance or development management from farm family to village, county and on up to central level, they are most relevant to the lower levels of actual project implementation and support. At the foundational level (i.e. lower and upper micro-level) rural families and their village communities are making and implementing day-to-day decisions that directly influence their livelihood prospects, the status of natural resource management in their village and in its local portion of the overall watershed.

It is at the next level (i.e. the lower meso-level) that the capacity of support service agencies can be built by facilitating their engagement in a similar iterative development process of adaptive management whereby they become increasingly able to provide appropriate facilitation and technical inputs to an increasing number of villages until there is a significant improvement in the environmental, economic and social conditions of the larger scale watershed that matches the meso-level of development management.

Higher levels in the governance hierarchy are more removed from the realities of development and concern with generating concrete outcomes. At these upper levels development management is
increasingly involved in generating the correct policies and allocating the necessary technical and financial resources that will most effectively support local development (see Figure 4 below).

Figure 4: Opportunities to Decentralise Watershed Development
3. Watershed Development Reviewed

3.1 The Global Context

3.1.1 Watershed Definition
A watershed, or catchment, is an area that drains to a common point. More specifically, it supplies water by surface or sub-surface flow to a given drainage system or body of water, be it a stream, river, wetland, lake or ocean. The watershed is the product of the interactions between land and water, particularly its underlying geology, rainfall patterns, slope, soils, vegetative cover and land use. "Watershed hydrology," as a term, encompasses these interactions. Water - its availability and its flow - is a critical determinant in the various production functions in a landscape, especially since it is open to interference by human agency.

3.1.2 Watershed Management Approach
A watershed approach can be a coordinating framework for management that attempts to focus public and private, community and individual efforts toward addressing high priority land and water-related issues within the hydrologically-defined geographic area. Watersheds are considered the unit of management for many natural resource-related issues including land degradation, water conservation, non-point source pollution, etc.

Watershed management is simultaneously a technical, social and economic undertaking. From a technical perspective, it involves reducing soil erosion, promoting vegetative cover, and harnessing rainwater resources. From a socio-economic perspective, it involves coordinating the actions of numerous land users in the watershed who may have multiple and possibly conflicting objectives.

In the 1980s watershed management was treated largely as a technical problem, but lack of attention to socio-economic complications undermined numerous projects because people refused to go along with technical plans that conflicted with their diverse interests. Today, watershed managers pay more attention to the socio-economic aspects of watershed management. Participatory approaches enable families and their communities affected by watershed management to be involved and shape key decisions. The intention is to fully integrate environmental objectives with local economic, social and cultural goals.

3.1.3 Watershed Realities
Agriculture accounts for around three-quarters of global fresh water consumption. Should global population increase by 65% over the next 50 years as predicted, around 70% of this future world population will face water shortages and 16% will have insufficient water to grow their basic food requirements. Hence the major international interest in watershed management

As the necessary increases in food production must be achieved by using existing water resources on existing land, increasing water use efficiency and agricultural productivity to provide food security and livelihood for the rural poor majority is the central objective of watershed development.

Although irrigation is often proposed as the way to achieve higher productivity per unit area of land, it increases the pressure on freshwater resources. Since irrigated agriculture provides only about one third of the world’s food, a relatively large increase in production would be required. However, increasing the efficiency of rain-fed agriculture would both increase food production and also reduce the demand on freshwater resources. It is therefore essential to increase water-use efficiency in rain-fed, as well as in irrigated, agriculture.

3.1.4 Water Policy and Primary Production
Some key policy issues facing watershed managers in respect of water allocation for primary production (i.e. all forms of agriculture, horticulture, livestock, fisheries and forestry production) include:

- the extent irrigation can be expanded given competing demands for the finite water resource including the need to maintain environmental flows, hydropower and supplies for urban and industrial application;
- the extent that primary production is constrained (including food shortages) if irrigation is not expanded;
- the potential for increased primary production (both rainfed and irrigated) including closing the yield gap rather than extending the yield frontier (i.e. reducing below-average within-farm yields rather than increasing the average yield per unit of input);
- national policy on water allocation, food security and international trade in food.

These complex policy issues can only be determined at macro-level using integrated water resource management principles, approaches, strategies and techniques including the emerging array of geographic information systems and decision support tools. This element of watershed development is not included in this review given its focus on the micro- and meso-level where community resource management and poverty alleviation are primary concerns.

### 3.1.5 Water Management for Agricultural Production

Improvements in agricultural water management and production can only be achieved by improving the water-use efficiency of both rain-fed and irrigated agriculture (i.e. producing the same or a larger amount with less water). However, improving or maintaining water quality is also an important element of agricultural water management.

While the increase of food production is the most pressing issue in many countries, the increase in diversified primary production for poverty alleviation and maintenance and improvement of water quality is a major concern in others. Fortunately, improvements in diversified primary production and in water quality are most often directly linked to improving soil conservation by controlling rainfall runoff, soil erosion and sedimentation.

In addition to reform of the institutional and regulatory framework, to secure primary production and water supplies, several interventions and actions are required:

- improved natural resource management, particularly soil & water conservation;
- poverty alleviation through participatory rural development;
- building capacity to support participatory development and technology transfer.

### 3.1.6 Watershed Management Objectives

For many of the lead agencies involved in managing river basins, watershed management is largely synonymous with water resource management. It is useful to identify the underlying natural resource management objectives of watershed management and distinguish these from the more overt rural development objectives of watershed development projects.

In its broadest sense the objective of watershed management is to rehabilitate and sustain the ecosystem services, the productivity of the natural resource base and the well-being of all inhabitants living within the watershed boundaries, including its natural biodiversity and the social and economic well being of its rural and urban communities. In this context the success of watershed development projects can be rated against some general criteria:
1) The capacity of the watershed to manage the decent of incident rainwater without destruction or damage to the productive capacity of its natural resource base or to human habitation (including sustainable agriculture and economic and social infrastructure). This hydrological capacity is largely a measure of catchment characteristics (profile, vegetation cover, landuse, etc) and rainfall pattern. These two factors determine the erosive force (volume x velocity squared) of any rainfall event and is manageable within these constraints (e.g. the one-in-one-hundred year event is likely to threaten the best managed watershed, particularly if the upper profile is steep and extensive and the lower profile flat and restricted).

2) The effective utilization of incident rainfall to sustain ecosystem services, agricultural production, industry and rural and urban populations. This water yield capacity is largely a measure of how much incident rainfall is retained as soil moisture, surface and ground water, and is largely manageable by controlling run-off and soil erosion (by dams and correct land uses) and by maintaining water quality through reduced sedimentation and point source pollution.

3) The effective utilization of incident sunlight for primary (photosynthetic) production: This productive capacity is largely a measure of the extent and type of ground cover across the watershed and is manageable by maximizing groundcover and the selection of agricultural production systems (including forestry, agroforestry or pastures for animal production)

4) The capacity of soils to sustain the biosphere. This is largely a measure of the extent of disturbance to the natural environment and resulting soil erosion caused by human settlements and occupations including all forms of primary production (agriculture, animal husbandry, forestry and mining) as well as secondary and service industry (processing, manufacturing, retailing), urbanisation and general consumption including pollutants from agricultural and industrial inputs, by-products and waste products.

Managing this biotic capacity is largely achieved through controlling soil erosion and soil fertility decline by matching land use to land capability, re-cycling nutrients and maintaining soil health and organic carbon (e.g. by composting and minimum tillage and controlled grazing).

These general criteria indicate the inherent complexity of watershed management and its integrated and holistic nature. Watershed management activities must cover a wide range of disciplines (e.g. hydrology, ecology, engineering, forestry, agriculture, etc) as well those associated with managing highly industrialized human settlements and burgeoning urbanization (e.g. sociology, public administration, etc).

However, as a result of natural resource distributions and the forces of history, intensive settlement is mostly located in the lower portions of river basins where they eventually have to suffer the consequences of natural resource mismanagement in the upper watershed including declining water supplies, worsening droughts and floods with sedimentation and damage to water storages, irrigation, and other vital infrastructure. Watershed development activities are therefore frequently focused on these headwater sections of catchments.

3.1.7 Watershed Development:

Upper portions of river basins, catchments or “watersheds” are by their nature normally the more rugged, isolated, inaccessible and least developed. The rural communities in these areas most often comprise the rural poor including various cultural minorities who have retreated to the more isolated areas. They commonly eek out subsistence in small communities constrained by inadequate access to
markets and basic services, including the economic and social infrastructure taken for granted in the more developed lowland areas (such as roads and transport, domestic water supplies, primary education and health care and access to output and input markets and credit).

However, these rural communities are the de facto managers of the natural resources in their village areas. Their landuse and other resource management decisions accumulate to impact directly on major portions of most watersheds. For the watershed management objectives outlined above to be met these rural communities must be supported to achieve their village development and poverty alleviation outcomes in a manner consistent with sound watershed management.

Watershed development is rural development in the context of watershed management. However, to achieve both rural development and natural resource management outcomes watershed development can only be implemented in collaboration with the local resource managers. Watershed development necessitates close collaboration with farmers and their rural communities. It also requires collaboration with townships and whole counties if the watershed development process is to become institutionalized, sustained, replicated and scaled up to the extent necessary to impact on entire watersheds.

Fortunately, the proper management of the water, sunlight and soil resources which generate improved livelihoods to the individual farming family also contribute to overall watershed management to the benefit of downstream communities.

It is also fortunate that the naturally ascending hierarchy of watersheds that is formed as water drains down the catchment (from a number of zero order watersheds which combine to form a small subcatchment, a number of which combine to form a branch, a tributary, etc) provides an opportunity to match each level of watershed in the hierarchy with an appropriate level of management responsibility.

By matching land use with land capability small groups of individual farmers can design and implement effective watershed management on their adjoining farms which comprise one zero-order or “micro” watershed (e.g. of the scale of 5ha. Similarly, “groups of groups” comprising a portion of a natural village can design and implement common small-scale watershed development activities (e.g. check dams or small scale irrigation diversions) in the small subcatchments (e.g. 10-15 ha) which are composed of a number of micro-watersheds.

This matching of watershed scale, NRM activity and level of management responsibility can continue up through village to township and county level, with the appropriate types of watershed development activity being managed (i.e. designed and implemented) at each level. More complex interventions (e.g. key dams, larger irrigation systems) will initially require significant technical support but through hands-on training and experiential learning the capacity and capability of local communities will soon increase to the point where they are able to autonomously manage village development and begin to assist other villagers to apply similar approaches, strategies and techniques to achieve similar outcomes.

3.2 Key Issues in Watershed Development:

3.2.1 Participation and Full Engagement:

The basis for promoting participatory approaches to watershed development and poverty alleviation lies in the principles of subsidiarity (if an activity can be performed effectively at a lower level then it is best done at that level) as well as freedom and responsibility to mobilize individual and community self interest and capability in the task of human development (and local-level nation-building).

The application of these principles can empower individuals, their families and local communities to build their capacity for sustainable development through experiential learning.
Farmers are the actual managers of the natural resources on their farms so they must be fully involved in any attempts to improve their management of the soil, water, plant and animal resources under their *de facto* control.

However, secure access to these resources in the form of secure tenure or usufruct rights so that the benefits of improved resource management and more sustainable utilization flow to the farmer is an essential pre-requisite to securing their participation.

The foundational importance of local involvement in the development process inherent in all watershed and rural development projects has long been recognized internationally in terms such as “stakeholders” and “ownership”. But communication (informing) is not participation, neither is consultation.

Rural communities and each of their component groups (especially the more vulnerable such as the poor and female gender) must be enabled to participate to the extent that the most vulnerable groups are empowered to influence the village development process to secure their own interests including diversified sources of livelihood and reduced vulnerability (see *Figure 2: Stages of Community Engagement* above).

As the rural poor are usually the least important and influential, their voice is often excluded when projects are being designed and implemented. It is only with the experiential lessons from many failed projects and evidence of the importance of the participatory approach and a preferential option for the poor emerging from the NGO sector that this approach is becoming mainstream development practice.

Participation is the vital element at each step of the development process (see *Figure 1*) within each level of development management (see *Figure 4*). Participation enables managers at each level to become involved and fully engaged in the process. It allows them to contribute their experience, knowledge and understanding to situation assessment and planning, their energies and abilities to implementation; and their implementation experience and local knowledge to evaluation, review and re-planning so that they can improve the next iteration of the process meanwhile improving local capability and the sustainability and overall success of the project.

Participation promotes the vital sense of ownership and responsibility for successful outcomes whereby individual dedication and commitment provides the conditions wherein goals and objectives are more likely to be achieved. Managers and implementers at each level are more inclined to contribute their skills, knowledge, efforts and the other resources they may control to ensure effective project implementation if they understand the problems and opportunities being addressed, agree on the initiatives being taken, feel responsible for outcomes, can learn from failures and achievements alike, and enjoy the satisfaction of well-earned success.

Only by involving locals in managing all steps of the development process can they learn from project experiences and build their individual capability and institutional capacity to replicate, expand and sustain local development after the project period.

By using their acquired capability local participants can continue to make correct assessments and plan and implement sound solutions that enable appropriate responses to the ever-changing circumstances they are certain to confront in the future. Eventual empowerment and the ability for autonomous self-sustaining development is the real legacy of watershed development. It cannot result without full participation.

However, participation must extend to all stakeholders. The commercial sector with knowledge of the market, entrepreneurial skills and access to financial resources for investment frequently play key roles...
in supporting the development of more profitable agriculture and value-adding processing initiatives in rural villages.

**3.2.2 Preference for the Poor and the Female Gender:**

Taking account of the fact that communities are not homogenous and monolithic but diverse and complexly structured enables the voices and opinions of those most vulnerable and with less power and influence to be heard at all steps in the development process, but particularly during situation assessment and planning.

Special attention must be paid to ensure the participation of the most vulnerable households in the community. These are those with the lowest asset base such as single-headed households, the landless, those with least livestock, farm tools or an ability to generate food security and sufficient livelihood throughout the year.

This preferential option for the poor is based not only on considerations of social justice but development experience which demonstrates that where a community’s situation is altered to enable its poorer members to take initiatives that successfully alleviate their burden of poverty, the better-off members in the community will invariably also benefit.

Similarly, the participation of female members of the community (women and girls) must be proactively promoted by local facilitators, usually in separate women’s venues. Facilitating their knowledge and opinions is particularly important during situation assessment and planning stages.

In addition to childbearing and childcare (too often from a young age) female members of rural households are doubly burdened with the demands of both domestic and farm labour. Many project interventions can actually increase this burden unless activities are planned in collaboration with the women themselves.

The development of a village water system usually most benefits the female gender, both directly and indirectly. The non-productive labour demanded by the constant tasks of fetching water (and fuelwood) can consume a large proportion of the time and energy available to service the daily routine of female householders. By improving the health and hygiene of themselves and other family members, less time and energy is consumed by illness and caring for the sick, particularly the younger children.

The demands of farm labour on female members of the household are often excessive, particularly during peak seasons of planting, weeding and harvesting. Female participation in project planning enables account to be taken of the agricultural calendar as well as the seasonality of periodic illness, food shortages, cultural ceremonies and other customary activities.

Preferential participation also provides women with opportunities to access micro-credit and generate supplemental income from raising small livestock or other economic enterprise. Female-headed households, including those with male members absent as migrant workers, require special facilitation and representation during all stages of the village development process but particularly during micro-watershed and farm development planning when they tend to be under-represented.

Opportunities to engage in project funded labour contracts should be preferentially allocated to the poorer households. Labour-based options for project funded construction should be preferred wherever possible. This should include maintenance of economic and social infrastructure (e.g. water supplies, access roads and trails and multi-purpose community buildings. These provide a mechanism for promptly engaging poorer households and directly improving their livelihood while less immediate returns from on-farm investments in improved natural resource management (e.g. fruit trees and perennial crops) and alternative sources of income (e.g. livestock raising) are maturing to fruition.
3.2.3 Secure and Sustainable Livelihoods:
Farm families are engaged in the business of deriving livelihood from managing their natural resources and their other capital assets. To engage them in improving their soil and water conservation (and other aspects of natural resource management such as biodiversity conservation and ecosystem services) requires a focus on their livelihood activities, building on their assets and helping remove their real and perceived constraints. Improved natural resource management, including protection and rehabilitation of the natural resource base of soils and water resource base is directly related to improvements in sustainable productivity.

However, other options that effectively destroy the renewable resource base (such as forest destruction from excessive harvesting of lumber and firewood, denudation of pastures by overgrazing, degradation of soils by annual cropping on steep slopes) may seem more attractive in the short term, sometimes due to ignorance though more often due to the exigencies of obtaining a source of livelihood by the most direct and risk-free means.

Livelihoods are less vulnerable and more secure when they are derived from diverse sources including non-natural and off-farm sources. The sustainable livelihood approach is being successfully used around the world to address poverty in a strategic manner. It builds on established best practices in rural development and brings them together as a strategy to address poverty in a manner that is inclusive of participatory approaches, governance, decentralisation and sustainability.

3.3 Other Criteria Reflecting Best Practice:

3.3.1 Participation, Empowerment and Decentralisation:
Those responsible for making management decisions at each level are involved in all stages of the watershed development process

- Central and other senior levels are involved in conceptualization, have had an input into the design and willingly express a sense of ownership (ideally, a senior official involved from the outset openly “champions” the project).
- Middle level managers (e.g. provincial and county) were briefed by an appropriate central official before local preparation began and were oriented and involved in managing the project from conceptualisation and situation assessment. Ideally here too a senior official champions the project.
- Middle managers accept and understand the critical importance of practicing participation and take responsibility for engaging lower level managers in all stages of the project process.
- Village leaders are oriented by county and township coordinators concerning project objectives, outcomes and activities before the project began in their village and their assistance sought to brief and orient the community and, where appropriate, assist in managing the local development process.
- All sectors and interest groups in the local community, particularly the poorest households and women, are facilitated to participate in all orientation, explanation and discussions of the project’s purpose, processes, activities, intended outcomes.
- The village community are facilitated as separate interest groups or combined to engage in local PRA activities which included an assessment of the structure of village watersheds, the

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3 These are human (e.g. their labour), physical (e.g. their housing, cultivation tools, grain stores), social (e.g. friends and neighbours, reciprocity arrangements) and financial
capability of various classes of land within the village and their current use, and the status of soil and water management in the more intensively utilized micro-watersheds.

- Other elements of the village resource base are also assessed including “assets” (e.g. water sources, forests, irrigation systems, livestock, perennial crops) and liabilities (e.g. inadequate village water supply and access roads, degraded soils, seasonal food deficits, human and animal diseases).
- The village community is facilitated to identify root causes of poverty and under-development, to discuss realistic and possible solutions and decide on village development priorities and activities, specifically those which improve natural resource management and target marginal and poorer households.
- The village community is facilitated to identify specific activities, actors and timeframes, the nature and timing of support services required (e.g. materials, trainings, contracted machinery or services) including technical advice and facilitation of participatory monitoring and regular review and evaluation.
- All planned activities, timeframes and materials are costed and publicly displayed.
- Implementation of agreed work plans by village groups is closely coordinated with materials supply, training and other service delivery from meso-level and supervised and monitored by villagers responsible.
- In selected pilot micro-watersheds key farmers are facilitated and assisted to undertake detailed micro-watershed planning to control soil and water erosion and prepare individual farm development plans.
- In identified subcatchments implementation groups are facilitated and supervised to design, plan, implement, monitor and review soil and water management structures.

3.3.2 Adaptive Management and Capacity Building:
Those responsible for management at each level are improving their personal capability and institutional capacity by actively participating in all steps of the watershed development process and learning-by-doing.

- Project managers at all levels, but particularly those responsible for supporting participatory planning and implementation at village level, are actively reviewing and evaluating all approaches, strategies, techniques and outcomes; are constantly testing new and improved strategies and techniques; are learning-by-doing and making changes that lead to significant improvements; and are keen to further increase their capability by involvement in further extension and training.
- Key farmers and farmers groups in micro-watersheds and village subcatchments are testing new crops and soil and water management techniques and actively seeking the advice of other key farmers and agency technicians.
- Involved agencies at meso-level are collaborating in preparing area development plans and work programs to deliver appropriate services that support local implementation of village and farm development plans and enable increased capacity to manage local development.
- Central and upper-meso level managers are actively reviewing and revising the existing policy framework to ensure it is more supportive of participatory watershed development and the capacity of management teams at lower levels to sustain, replicate and scale-up watershed development.
4. China's Experience in Watershed Development

4.1 Background
Environmental degradation of air, water and land resources threatens the quality of life of the PRC's 1.3 billion people. In recent years increasing government awareness and commitment to addressing these environmental challenges has gained the support of the international community.

Deforestation and the subsequent accelerated rates of soil erosion and desertification is the primary biophysical cause of the increased frequency of flooding and serious sandstorms experienced in China in recent years. Environmental problems have become of greater concern to the government and the public as their severity increased, particularly after the Yellow River stopped flowing for almost nine months in 1997 was followed by severe flooding in the Yangtze River Basin in 1998.

The PRC has many of the worst land degradation problems in the world with >40% of its land area adversely affected. Land degradation has accelerated over the past 50 years increasing from the mid to late 1990s from an annual rate of 2,460 sq km to 3,400 sq km per year. Combined with pressures generated by the country’s rapid economic growth land degradation is having serious off-site effects in terms of sedimentation of rivers and reservoirs, deposition of wind-blown sands, dust storms and deforestation.

The planting of annual crops and the grazing of livestock on China’s 60 million hectares of steeply sloping farmlands (with slope >25 degrees) have long led to accelerated rates of soil erosion. Most steep farmlands are located in the Yangtze and Yellow River Basins where it is estimated that two thirds of the 2 million tons of silt released annually into these basin comes from sloping croplands (SFA 2000).

China can ill afford any loss of its natural resource base. With 1.3 billion people China must feed 22% of the world population utilising only 6.4% of the world’s land area, 7.2% of the world’s farmland and 5.8% of the world’s annual water resources. Moreover, most rivers, lakes and groundwater are already heavily polluted because most industrial, municipal and agricultural waste is discharged into drainage lines untreated. As scarce water resources become depleted and polluted there is increasing competition among urban, industrial and agricultural consumers and between upstream and downstream users.

While there is a sharp divide between southern and northern China in terms of water resources (with the south suffering a surplus that results in frequent floods while the north is chronically short) there is also a divide between the eastern and western provinces in terms of poverty, land degradation and economic development. Most land degradation is found in the vast western region.

As these western provinces comprise the watersheds of China’s two main river systems, the Yangtze and Yellow Rivers, the negative linkage between rural poverty and resource degradation has long been aggravating watershed deterioration. Meanwhile the demand of eastern provinces for water and hydropower is accentuating the need for effective watershed development.

4.2 Western Region:
The Western Region 4 covers about 70% of China’s total land area of 9.8 million square kilometres and includes 90% of the country’s 400 million ha of grasslands and 30% of its’ forest cover. The grasslands cover about 40% of China’s total land area and are mostly in the arid, semi-arid or alpine areas where the climate is harsh, communications poor and the economy relatively under-developed.

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4 The Western region covers six provinces (Sichuan, Guizhou, Yunnan, Sha’anxi, Gansu and Qinghai) and five autonomous regions (Tibet, Ningxia Hui, Xinjiang Uyger, Inner Mongolia and Guangxi Zhuang) as well as the municipality of Chongqing
Although not highly productive, grasslands provide the pastoral livelihood base for some 400 million people who are amongst the poorest in China. Land degradation occurs on nearly half of the Western Region with 27% of the land currently experiencing wind erosion, 16% affected by water erosion and 10% by desertification processes.

In previous periods economic development was emphasised with little attention to environmental sustainability. From the 1950s to the 1970s about 6.7 million ha of grasslands were converted to cropland as part of the drive to achieve food sufficiency in the face of growing population pressures. In the 1980s this policy changed to one promoting livestock production, again with little attention to the sustainability of the production system.

With land degradation currently occurring to a moderate to very severe extent on nearly half the Western Region’s driest and fragile environments due to wind or water erosion or desertification processes, policies and investments are being implemented to improve forest, grasslands and animal management.

However, these policies and programs too often failed to account for underlying social and economic issues which are often at the core of natural resource management problems (e.g. the implementation of the grazing ban failed to include provision of alternatives sources of income for livestock raisers). It is now widely recognised that future efforts need to address both the reversal of environmental degradation together with the alleviation of rural poverty.

**4.3 Policy Initiatives:**

The extent of environmental degradation and the declining condition of China’s water resources is clearly acknowledged by the Chinese government which is committed to reversing this degradation and to reducing poverty. The Integrated River Basin Management (IRBM) Task Force of the China Council on International Cooperation for Environment and Development (CCICED) recently noted that the management systems for water, rivers and lakes in China need urgent attention.

Poverty reduction and sustainable management of natural sources are key objectives of the PRC’s current 10th 5-Year Plan (2001-05). This plan calls for (i) attaching importance to the sustainable use of water resources; (ii) protecting land, forest, grassland, marine, and mineral resources; and (iii) improving environmental quality in rural and urban areas. The Outline for Poverty Alleviation and Development of China’s Rural Areas is expected to maintain importance in the 11th 5 year Plan (2006-2010).

The Western Development Strategy (WDS) launched by the central government in June 1999 has two main objectives: (i) to reduce economic disparity between western and other regions and (ii) ensure sustainable natural resource management. The WSD is having a significant impact on the water resources of the six provinces and five autonomous regions involved.

The Chinese government has implemented a number of far reaching polices and programs in recognition that current rates of forest and land degradation directly threaten the economic welfare of the nation, particularly the less developed western rural areas, and the vital hydropower and water supplies of the more advanced eastern provinces. Key government plans and programs include the following:

- **National Plan for Ecological Environment Construction (1998–2050).** This long-term framework plan coordinates water and soil conservation with national economic development. The plan also aims to improve living standards and prevent water and soil loss.

- **National Forest Protection Program.** To reverse the environmental impact of degraded forest resources the State Forestry Agency (SFA) formulated six Priority Forestry Programs...
(PFPs). Following on from the Forest Zoning Program initiated in 1995 to classify forests into commercial and ecological forests (the latter to protect against soil erosion and retain biodiversity, cultural historical and recreational values) the National Forestry Protection Program (NFPP) was initiated in 1998. Under this program, industrial logging in natural forests was banned in most areas. The program applies to all forests in the western region and is the largest nationally funded forest conservation program.

- The NFPP targets the rehabilitation and development of natural forests and includes a logging ban on some 30 million ha of existing natural forests in the headwaters of the Yangtze and middle reaches of the Yellow River. The NFPP involves reduction of timber production by 20 million m³, establishment of 12.7 million ha of plantations, maintenance of 94 million ha of forests and redirection of about three quarters of a million former state forest enterprise workers.

- **National Land Conversion Program (2000–2008).** In 1999 the government issued a policy aimed at bringing soil erosion and frequent flooding under control by converting steep cultivated croplands to forests and grasslands. The SFA implements this policy under the Conversion of Cropland to Forest and Grassland Program (CCFGP), also known as the Sloping Land Conversion Program (SLCP) and “grain for green” program. Its key measures include:
  - conversion of sloping cropland to forest and grassland;
  - providing cash and in-kind (grain) payments to farmers to compensate for their conversion activities;
  - closing off access to mountain areas for greening with free seedlings of forest and economic trees; and
  - contracting out regreening tasks to individuals.

After pilot work of more than two years and successful initial implementation, the CCFGP was formally launched in January 2002 and the scope of the pilot program was expanded to encompass 25 provinces, autonomous regions or municipalities directly under the Central Government. The State Council issued suggestions for improving the program.

Several types of land are eligible for conversion under the CCFGP and land enters into the Program by farmers nominating areas they wish to be included. Farmers’ applications are vetted by the local County Forest Bureau officials according to eligibility under the four categories:

(i) land that has severe water-induced soil erosion,
(ii) steep slope land where degradation threatens the condition of rivers,
(iii) lands where desertification threatens, and
(iv) land that is of ecological significance yet with low grain yield

The main feature of the CCFGP is that the Chinese Government provides free grain and cash payments for participating farmers. The annual grain payment made to participants in the Yangtze River Basin and other southern regions is 150 kg per annum per mu of converted land. In the northern regions and in the Yellow River Basin, the payment amounts to 100 kg per annum per mu. The amount of the cash payment is 20 yuan per annum per mu of cropland converted.

Other SFA programs that are aimed at controlling environmental degradation are the Key Shelterbelt Program to combat wind erosion, the Sandification Control Program to reduce...
sandstorms affecting Beijing, the **Wildlife Conservation Program** to preserve biodiversity, and the **Forest Industrial Base Development Program** to establish fast growing and high yielding timber plantations.

- **Desertification prevention and control programs.** These programs include three north shelterbelt system programs, Plain Farmland Shelterbelt System Program, Taihang Mountain Afforestation Program and National Program for Prevention and Control of Desertification. Shelterbelt forests in the middle and lower reaches of the Yangtze and Yellow Rivers and Taihu Lake catchments will also be affected by prevention and control programs.

- **CCD-NAP.** This program focuses on 265 priority counties in Western China. Implementation is over three phases totalling 50 years. A key objective of CCD-NAP in its first phase is to control 22 million hectares of degraded land by 2010. The investment program lists 24 projects covering priority areas with a total budget of $1.26 billion but none of these projects attracted development partner financing as they were seen as too traditionally forestry oriented.

- **Biodiversity Conservation Action Plan.** This plan was formulated in response to the Convention on Biological Diversity (CBD) and the Country Study Report on Biodiversity in China which carried out comprehensive assessments of biodiversity, indexed endangered animals and plants, and put forward policy suggestions regarding the strengthening of national capacity for biodiversity protection and the sustainable use of biological resources.

- **National Wetlands Conservation Action Plan enforces** the Ramsar Convention on wetlands and covers the designation of important wetlands as national reserves.

- **Land tenure arrangements have also been altered on grasslands.** Previous collective grazing lands are being apportioned to individual households on long term lease (30-50 years). Large scale programs are being implemented to remove more than 60 million hectares of the most seriously degraded grasslands from grazing and a ten year Plan for National Grassland Ecological Protection and Development is being implemented by the Ministry of Agriculture over the period 2001-2010 which includes a range of Grassland Improvement Programs (GIPs). This involves fencing of pastures, reconversion of croplands into grasslands, rotational grazing, yard feeding, forage plot establishment and aerial sowing with improved species.

### 4.4 Administrative Framework:

In China water is largely viewed from an engineering and administrative perspective: as a fluid to be regulated or controlled using a top-down approach in which laws, policies, standards and performance criteria are set by central authorities and implementation is the responsibility of provincial, county and township governments. The prevailing priority in the context of watershed development is to control the flow of water to reduce flooding and to maximise hydropower or agricultural production.

The broader integrated and participatory requirements of watershed management are not served by present laws and administrative structures and under the existing Chinese administrative model the decentralisation and social aspects of watershed development are seldom acknowledged.

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While the need to strengthen national policy, strategy and operational frameworks for sustainable management of forests and grasslands is recognised, coordination at the national level is fragmented across a number of Ministries with overlapping responsibilities. At the local level institutional capacities are lacking, particularly in areas of management and field operations.

The National Development and Reform Commission (NDRC) aims to regulate China’s economy by coordinating the activities of the various central departments at the macro level through the allocation of annual budgets. However, horizontal integration fails to result as department budgets are tightly tied to specific responsibilities which prevents inter-agency coordination on multi-sectoral projects such as watershed development.

While the Ministry of Water Resources (MWR) at the central level has overall responsibility for managing water quantity and quality, all sector-based departments (e.g. Construction, Transport, Agriculture, Forestry, Land Resources, Energy, etc) tend to act unilaterally in accordance with their specific mandates.

However, although local bureaus of provincial and lower governments oversee compliance with national and local regulations and standards, their budgets originate from the province so these local bureaus do not necessarily answer to the policies and directives of national ministries. Central regulations therefore tend to be implemented in an uneven and sporadic manner, thereby also confounding vertical integration.

Incentives to achieve rapid economic development, often driven by the political aspirations of provincial and other local officials and the demands of eastern provinces for hydropower, further skew development priorities away from long term investment in environmental and social sector issues and in rural development.

Watershed management was further confused when the central government established seven River Commissions responsible for water resources planning in China’s major river basins. These Commissions report to MWR but have no control over the activities of individual departments and neither the departments nor the commissions have effective control over activities at the community level.

4.5 Watershed Development Realities:

Although the environmental benefits of the Priority Forestry Programs is still to be fully evaluated, it is already evident that they have a significant impact on the environment and ecology. However, a study at the end of 2002 found that the programs have also resulted in negative social, economic and fiscal outcomes including dramatic reduction in livelihood, diminishing fiscal returns, high cost of implementation, tenure insecurity and accelerated increase in timber imports. The logging ban has also been arbitrarily extended into collectively owned forests areas cutting off community access to timber and non-timber forest products without compensation.

Income reduction for forest enterprises, local governments and rural households in NFPP areas has been severe, though state-owned forest enterprises already suffering from resource depletion and economic crises prior to the logging ban welcomed the program’s financial support.

The CCFGP’s goal of facilitating rural adjustment (i.e. moving people away from areas where long run sustainable agricultural systems will not be able to generate employment prospects from the population

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6 Implementing the National Forests Protection Program and the Sloping Land Conversion Program: China Council for International Development Cooperation on Environment and Development
densities currently living in those areas) is linked to the capacity of the rest of the Chinese economy to absorb labour freed from unsustainable rural enterprises. This will depend on the continued growth of the Chinese economy and the capacity of the training system to re-skill those moving from rural areas to the cities. Whilst there is already a strong trend for younger people to make the move from their rural roots, the CCFGP requires the trend to accelerate.

The balance of the social costs and benefits of the CCFGP is not clear. The monetary costs of the Program are significant given the scale of the land use changes being initiated. The expected benefits of the Program have not been estimated and are difficult to assess given that many of them relate to environmental improvements.

Only anecdotal evidence is available as to the extent of the environmental impacts of the CCFGP. However, a recent review considers the environmental returns on the investment in CCFGP may be lower than could have been possible because of poor strategic targeting (e.g. farmers’ proposals to convert land have been assessed only on broad ecological criteria).

Cost effectiveness of achieving the environmental outcomes is also in doubt. By weighing the environmental benefits (using steepness of slopes as a proxy) against the opportunity costs of retiring the cropland, Uchida et al found the Program fails to target systematically plots with higher slopes and lower opportunity cost, therefore undermines the cost-effectiveness of the Program (2004).

There is no mechanism within the Program to ensure that the lowest cost suppliers are the ones who are supported to convert. This is because the “exchange rate” between conversion and grain/cash is varied only between two levels across all of China. Hence there is a predominance of conversion to forestry rather than grassland because the grain/cash payments made for conversion to grassland are made for only two years compared to eight for conversion to forest. In terms of both ecological and economic outcomes areas that would have been better suited for conversion to grassland have been converted to forestry.

**4.6 Key Issues and Challenges:**

**Institutional collaboration:**
An integrated and participatory approach to watershed development in China will require a coherent and stable institutional structure involving buy-in from key ministries at both central and provincial levels and long term commitment to work together collaboratively outside their mandated boundaries. Such commitment will need the political and policy support of central authorities and similar support from provincial governors.

**Administrative complexity:**
Similarly, an integrated and participatory approach to watershed development will require multi-sectoral cooperation and coordination and overcoming current administrative barriers that prevent sharing of data as well as human and budget resources. This will require piloting of trial administrative structures and procedures for potential adoption by governments and determined intervention at senior levels to enable a culture of collaboration to emerge, particularly in relation to the commingling of project funds and the instigation of integrated area development planning at county level that directs support service delivery to community-based resource management and poverty alleviation activities at village and household level.

**Stakeholder participation:**
In China there is limited experience of stakeholder participation in watershed development. Government agencies equate participation with communication or informing the effected public about
the government’s development projects to determine how local people will be involved in implementation. The capacity of local NGOs is limited and still evolving. They are largely viewed as adversaries and their facilitative role in engaging poor and marginalised rural communities is seldom recognised. Experience confirms that local involvement will only be sustained if both conservation and economic issues are addressed simultaneously.

**Social and gender issues:**
In contrast to the recent initiatives instigated by donors there is little mainstreaming of social issues in watershed development including such basics as primary health care or village water supplies. Government agencies involved in watershed development give little or no regard to gender considerations in policy, research or implementation activities.

**Scaling up:**
Despite numerous pilots of participatory approaches or models demonstrated in successful pilot projects experience shows that these are seldom adopted for use in on-going activities of government agencies. The main reason for this disconnect is the failure to link the technical and methodological elements of the pilot projects with the requisite changes in policy and administration. The challenge is to cultivate a receptive political, policy and administrative environment in which the principles, approaches, strategies and techniques demonstrated in the pilot projects can be institutionalised.

4.7 Prior Achievements and Current Initiatives:

4.7.1 MRL Program, Jiangxi
The Mountain-River-Lake Integrated Water Resources Development Program of Jiangxi Province gives cause for optimism as it demonstrates that participatory watershed development is possible despite the issues and challenges outlined above.

Involving some 16.7 million hectares and a population in excess of 41 million people, the water, land and forest resources of Jiangxi Province were becoming seriously degraded when the Provincial Government initiated an integrated eco-restoration and poverty alleviation program in the early 1980’s. Poverty reduction was a focus of the program and project planning was based on watershed not administrative boundaries. A project office with executive powers was established at provincial level with branches at the prefecture and county level.

In 1991, after much detailed survey and planning the Provincial Peoples Congress approved the projects’ comprehensive plan emphasising that it was long-term and required all related agencies and parties to be involved in implementation under the leadership of the Provincial Governor. This legislative support and political commitment behind the MRL program was crucial to its success as was the ongoing institutional development that progressively brought together various leading groups into an integrated MRL Development Committee whose members came from related government agencies, involved prefecture leaders with subordinate committees at prefecture level.

In 1997 participatory methods were introduced that involve local farmers as the focal point of rural development. Farmers are encouraged and assisted to participate in the whole process of problem analysis, project planning ad decision making, implementation monitoring and evaluation and follow-up management leading to holistic landuse planning and self-managed farmer’s organisations.

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7 DFID’s Poor Rural Communities Development Project, CIDA’s Participatory Watershed Management Program
8 Plan International’s Village Water Development Project in Shaanxi
As a result of the shift to participatory processes the role of the project office changed from being the key actor to one of facilitator with the farmers making the participatory landuse plans and the office providing the necessary technical advice.

The MRL Approach:

The key development goals of the MRL were:

- To achieve integrated development of the region through comprehensive planning and implementation;
- To gradually establish an economic complementary mechanism for resources renewal, to protect and sustainably use natural resources, to develop the economy and human resources and to improve peoples living conditions;
- To establish a service network of high technology and training for the region;
- To manage and control water and soil erosion and environmental pollution in a holistic manner; and
- To establish MRL ecological economic zones offering models to similar areas in China and abroad.

MRL Strategies:

- Holistic and integrated watershed development focused on alleviating the poverty of farmers, the day-to-day resource managers.
- Water and land management are implemented comprehensively taking ecology and economy into account.
- Establish an overall planning framework based on a comprehensive understanding of the resources, environment and social situation to guide development.
- Experiment and demonstrate development and management of typical zones and establish a network of technical training to promote human resource development and enable scaling up.
- Develop case studies and demonstrate and disseminate to facilitate program implementation.
- Provide community based credit to enable small farmers to access loans and grow out of poverty.
- Establish relationship for cooperation and exchange with many international organisations.

Lessons Learned:

- Political commitment is essential for large and wide ranging projects.
- An integrated approach involving social, economic and environment consideration is essential to address resource degradation and alleviate poverty.
- Public participation and awareness is vital to all development programs.
- Activities providing long term benefits must be combined with those that generate short-term results.
- Development models must be based on local conditions and participatory planning and implementation.
- Technology must be applicable and appropriate and extended step by step.
- It is necessary to establish an effective and efficient management system.

4.7.2 Partnership on Land Degradation in Dryland Ecosystems
Initiated in 2003 and to run for 10 years this partnership project with the ADB and GEF was initiated by the PRC under the Western Development Strategy to support a sequenced set of priority activities that are aimed at:

(i) strengthening the enabling environment and building institutional capacity for integrated approaches to combat land degradation and

(ii) demonstrating viable integrated management ecosystem management models for widespread application.

- The all up costs is projected is $1.5 billion with offsetting contributions from ADB ($250 million) and GEF ($150 million) offset
- The initial project to build institutional capacity has the following components:
  - Improving the policy, legal and regulatory framework,
  - Strengthening institutional coordination at national and provincial levels,
  - improving operational arrangements at provincial level,
  - building institutional capacity and
  - operationalising an effective M&E system.

During project preparation there has been widespread consultation, coordination and collaboration with other donors including the World Bank and UN (the former in relation to its Gansu and Xinjiang Pastoral Development Project and the latter to harmonise with the National Action Plan to Combat Desertification) as well as with IFAD and FAO concerning related pipeline projects.

**4.6.3 Yunnan Environmental Development Program:**

The Yunnan Environmental Development Program (YEDP) is a bilateral assistance program involving the Yunnan Provincial Government (YPG) and DFID. It was designed in the late 1990s to assist the YPG to develop, test and evaluate measures to address environmentally-linked poverty and incorporate experiences into provincial development practice. Initiated in 2001 YEDP has attempted to identify and address the complex issues surrounding poverty and environment in Yunnan with the objective of build the capacity of the Yunnan Provincial Government to prepare and implement participatory, pro-poor, environmentally sustainable development.

YEDP sought to directly address the relationships between natural resource mismanagement and poverty in innovative ways by encouraging participation and promoting integrated working approaches between agencies on a large scale.

Yunnan’s poor are estimated at about 30% of the province’s population, are predominantly ethnic minorities (of which 26 are found in Yunnan) and closely associated with the complex, fragile and geographically remote areas where their livelihoods could be severely constrained by the declining natural resource base.

From a Province-wide field-based study of poverty-environment relationships YEDP identified and categorised environmental factors which influence poverty in Yunnan and their various mutually reinforcing cycles. These factors included:

- Various long term policy shifts and contradictions (e.g. promotion of tobacco planting and the later ban on tobacco cultivation).
- The juxtaposition of traditional and state development strategies.
- The disproportionate burden on women for labour and reproductive purposes.
- The history of so called “natural disaster” and their link to resource mismanagement.
From pilot activities in three selected ethnic villages in close collaboration with county and provincial governments and key line agencies the YEDP has generated a number of key lessons and recommendations for YPG to consider in future policy, plans and processes and in moving towards better practice in addressing poverty and environmental challenges in Yunnan. Many of these have direct relevance to watershed development.

(i) Strengthening Policies and Institutions:

- While national policies and programs support poverty alleviation and environmental management, there needs to be sufficient flexibility to enable provinces to address their particular needs and priorities.
- Selecting the most appropriate body to lead a particular program is essential to secure the participation of the ‘right’ policy makers and gain credibility and support for its aims and objectives.
- The Sustainable Livelihoods Approach and SL framework helps bring poor people’s livelihoods and sustainability to the fore in the reform of policies, institutions and processes and to understand their impacts on peoples’ livelihoods.
- Sustainability appraisal is a systematic technique for evaluating an emerging policy. It should be used from the initial setting of policy objectives, the draft policy and final policy stages. Together with representative and effective participation it can help ensure the final policy contributes towards sustainable development.
- Achieving policy and institutional change is a slow and complicated process that needs to be done incrementally with strong support from policy makers.
- The need for ongoing training and capacity building among provincial cadres to contribute to institutional strengthening and reform, not seen as unrelated events. Theoretical training should be supplemented with on-the-job training.
- The provincial government needs to identify and establish partnerships with relevant organisations (NGOs and consultants) who can provide training and capacity building in such areas as policy mapping, stakeholder analysis and engagement, gender equality and participatory approaches.

(ii) Promoting Integrated Working:

- YEDP demonstrated it is possible to move towards a culture of integration and joint agenda setting by agencies and departments working on environmental and poverty issues, despite the stronger vertical linkages within departments.
- At County level in particular there is strong willingness among agencies to work together where there are shared goals. This should be supported by joint trainings, field visits and planning sessions.
- Joint working, even at provincial level, is easier to achieve when ‘championed’ by a senior provincial official involved in policy making. Such champions also played a key role in disseminating findings of the project and promoting uptake.
- Environmental and social impact assessment provide opportunities for integration.

(iii) Encouraging Participation:

- Stakeholder participation clearly serves to strengthen the overall effectiveness of a policy, plan or program. The wider application of stakeholder analysis and engagement techniques among provincial officials would benefit future plans.
- Public participation should be started at an early stage in the policy making process such as setting new policy objectives. Techniques for effective participation are important as...
broader and more representative participation as these elicit more useful/vital information and build ownership.

- The establishment and deployment of multidisciplinary teams to address environmental and poverty issues with wide range of stakeholders provides social, economic and environmental viewpoints.
- At field level effective stakeholder participation involves the formation of an important relationship of trust between communities and implementing agencies. This must take place from the start and involve the poorest in the process.
- Provincial line agencies should develop specific policy guidance on techniques supporting the participation of women and minority groups in decision making at community level.
- The SLA is a very useful tool for undertaking detailed poverty assessment, identifying vulnerable groups and constraints and to guide targeting including identifying particular poverty and environment challenges.
- While participatory approaches that involve local communities provide clear and tangible benefits there are obvious challenges of scale to ensure the necessary capacity is built to deliver participatory development.
- Significant community participation and the choice of local technologies results in suitable equipment being supplied at a more acceptable price.

4.7.3 Poverty Alleviation & Development Program

Since the founding of the Peoples Republic of China in 1949 and especially since the end of the 1970s when China began to implement a policy of reform and opening to the outside world, poverty alleviation has been a priority and the Chinese government has implemented nationwide a large-scale program for development-oriented poverty relief to ensure adequate subsistence for the rural poor and enable their all round economic and social development.

Based on criteria adopted at the time, in 1978 there were 250 million poor in rural areas (i.e. 30% of the total rural population). From 1978-85, with reform of the centralised production and pricing system (e.g. the allocation of village land to farm families) and development of towns, per capita grain production rose by 14%, farmer’s net income per capita increased more than three times and the number of rural poor still living below subsistence was halved to 125 million.

By the end of this first major development period it was evident that the gap between some rural areas and those on the eastern seaboard was widening due to economic, social, historical and geographical constraints and differing natural resource endowments.

From 1986-93 the Government intensified the anti-poverty effort and established various special anti-poverty institutions, funds and preferential policies that, by the end of the period, had reduced the number of poor to 80 million (about 9%). However, there is a strong regional focus to the distribution of poverty in China. In the 1994 assessment of 592 priority poverty counties, those in the central and western region accounted for 82%, particularly in the west. Hence the poverty alleviation effort including deepening rural reform left the problem increasingly concentrated in specific geographical areas such as the mountainous Dashishan area of southwest China, the Loess Plateau of the northwest, the Qin and Ba Mountains and Tibet.

9 This eventually led to the formulation of the Western Region Development Strategy in the year 2000.
The Seven Year Priority Poverty Alleviation Program launched 1994 was the first action program with specific objectives, targets, activities and timeframes. Economic and social development in the 592 priority poor counties was significant so that by 2000 the program had largely achieved its goals:

- The numbers of rural poor not yet assured of subsistence was reduced to 30 million (3%).
- The percentage of administrative villages in poverty areas with access to electricity, road, postal and telephone service was 96%, 89%, 69% and 68% respectively.
- Grain production had increased by 12%, farmer’s net income had doubled from 648 to 1337 yuan, agricultural added-value had increased by 54%, industrial added-value by 93% and financial revenue had almost doubled.
- 318 of the poor counties (54%) had nine year compulsory education in place and were well on the way to addressing illiteracy among the young and able-bodied.
- Township health care facilities and services were significantly improved, and
- A wide array of improved agricultural techniques had been extended to farmers.

China’s preferential policy on poverty alleviation involves two elements: to assist poor households meet their basic necessities and to support the economic development of poor areas. The first is addressed by waiving various taxes, providing longer grace periods on loans and relaxing mortgage and collateral requirements according to actual situations. The second is addressed by transfer payments and other special financial support from central government and tax incentives for start-up firms.

Central funds for poverty alleviation projects are disbursed via a series of Poverty Alleviation Offices from central to township level with associated Development Oriented Poverty Alleviation Leading Groups at each level. All government agencies have been charged with prioritising poverty alleviation. The provinces are primarily responsible for planning and supervising the expenditure of various government agencies on poverty alleviation projects.

In any locality the PA program is managed by a project management office located within the local PA Office. In each instance these face the challenge of employing competent people from different disciplines and building institutional capacity to support integrated and participatory village development particularly during the project preparation process as those who are trained then go on to become the backbone of the PA staff in the county.

In addition to recognising the importance of increasing the participation of rural households and villagers in local development through village development planning, other objectives of the Poverty Alleviation Program include:

- Fostering counterpart relationships between selected wealthy eastern provinces and poorer western provinces on the basis of firm-to-firm cooperation, project assistance and talent exchange as well as applied support for construction of roads, schools and drinking water systems.
- Promoting voluntary migration of poor households to more suitable areas with housing and other incentives.
- Assisting labourers to find work in other areas, thereby gaining income and skills
- Promoting family planning and environmentally friendly agriculture.

From the 1990s the Chinese government increasingly drew on the experiences of international community and continues cooperation with international organisations with remarkable success. Cooperation with the World Bank began in 1995 and involved the following three projects:

- China-World Bank Southwest Loan Project targeted 35 of the poorest counties in three provinces (Yunnan, Guizhou and Guan) with US$247 million of the 4.23 billion yuan total
cost as Bank loan. The eight components included agriculture, infrastructure, development of secondary and tertiary industry, sending labourers to other provinces, healthcare and education institution building and poverty monitoring.

- China-World Bank Qin and Ba Mountainous Area Poverty Alleviation Loan Project began in 1997 in 26 target counties in Sichuan, Shaanxi and Ningxia regions with an investment of almost 3 billion yuan and a WB loan of US$180 million.
- China-World Bank Poverty Alleviation in Western Region Project targets more than 20 priority poverty counties in Inner Mongolia, Gansu and Qinghai and the subsistence problems of over 2 million people.

In total the World Bank has invested about $1.4 billion in poverty alleviation projects over the past decade and the Chinese Government has invested a similar amount. The Participatory Rural Community Development Project currently under participatory preparation in Guizhou, Yunnan and Sichuan provinces in collaboration with DFID and the World Bank will involve another $130 million including $30 of grant funds.

The past decade of implementation has provided a range of good lessons and built considerable institutional capacity in the poverty alleviation offices at all levels. The World bank projects in particular are credited with the development of a holistic, integrated and participatory approach to poverty alleviation and the participatory village development planning process that purposefully solicits villagers own ideas concerning the reason for their poverty and suggested countermeasures.

By reviewing all these experiences it was found that the participatory method:

- enkindled a sense of ownership among villagers previously made passive by top-down processes.
- encouraged the realisation that poverty alleviation is the task of farmers themselves, that government can only assist;
- enabled greater transparency as villagers knew all the details of the VDP whereas previously the project was only understood by higher administrators.

However, it was also found that:

- villager participation in development planning was not in itself sufficient if the government then took the lead role in managing implementation, and
- VDP was in stark contrast to that previously adopted and local leaders were often somewhat resistant having become used to central planning over a long period.

The integrated village development plan has become a feature of the PA program. It is a basic multi-sectoral development plan and the focal point of a three-part strategy to address the linked problems of rural poverty, HIV/AIDS and the development of rural towns (the other two elements are labour training/labour export and enterprise development in villages and small towns).

The Chinese Government’s 2001-2010 Poverty Alleviation Outline incorporated VDP and identified 148,000 target villages where poverty alleviation efforts would be focused. Activities have been completed in 30,000 villages and are ongoing in 40,000. Meanwhile, since 2003 the national government has organised meetings of senior leaders and staff at the site of leading PA Program activities and every year all party secretaries of the 592 priority counties meet to review the program.

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10 This includes the Foreign Capital Project Management Centre of the State Council Leading Group Office of Poverty Alleviation and Development which has facilitated all dealings with the World Bank and more than 20 other international donors.
The Chinese government and the World Bank are currently negotiating the use of a community driven development approach to deepen the participatory process so that farmers are not only planning village development but are empowered to manage the local development process. Pilots are being formulated with support of a Japanese government trust fund and will be implemented with 2/3 rd Chinese government finance in 60 villages in four counties in four provinces as the forerunner to the 5 th major PA project supported by the World Bank.

Another feature of the Poverty Alleviation Program is its ability to mobilise other government agencies to deliver their services to the target villages to enable development to be integrated (i.e. not just agricultural development but also drinking water supply, road access, primary health and education, micro-credit, etc).

This successful integration is based on the Central Government’s priority and its clear directives that all agencies prioritise poverty alleviation. This ensures poverty alleviation activities are included in agency budgets and agency chiefs at each level accord importance to attending meetings of Poverty Alleviation Project Leading Group. In turn, the main function of the PLG is to integrate and mobilise resources of the different line agencies. It is also the result of the PA Program being located in identified poverty counties as well as its facilitation of an integrated village development plan that clearly identifies activities by sectors.

Finally, by functioning somewhat as an integrated ‘rural development bureau’ with a specific budget (about Y600,000 per target village) with which to reimburse an agency for successful implementation of its portion of the village development plan, the PA Program can attract agency collaboration. However, it is widely acknowledged that the enthusiasm, support and leadership of county officials are the major determinants of inter-agency support to the PA program and in the final analysis most financial resources are in the hands of the government’s financial bureaus which still tend to dominate decision making.

In 2006, under the 11 th Five Year Plan, the Chinese government has launched a new socialist rural development campaign involving integrated county development based on greater village autonomy.
5. Watershed Development Practice in Loess Plateau Projects

In conducting this assignment the team intensively reviewed the implementation of the two phases of the World Bank financed watershed rehabilitation project in the Loess Plateau region. The purpose was to understand the practical process of the project assessment, planning, implementation, monitoring and evaluation against the general conceptual framework of this assignment.

5.1 Watershed Management Planning

The LPP's planning process can be analysed as two interrelated process - macro-level decision process and micro-level technical planning and design. The macro-level decisions were made through a strong centralized approach as the project was financed through a highly centralized finance management system, i.e. agreement between the World Bank and the Ministry of Finance, and then on lending to subordinate governmental levels (provincial – county – township – village/farm household). The basis for the central decisions were that project objectives were within the government’s strategic development plan and suitable for introduction of external financial resources to achieve such development strategies.

The review team focused on examining the “technical planning and design” of the project as this was where the proposed conceptual frameworks could be applied.

Under the leadership of the central government LPP was implemented through the Ministry of Water Resources. MWR is an agency with extensive experience in such type of projects, and accumulated extensive experiences in the technologies and standards that should be applied to this type of the project. Therefore, the project had little problem dealing with the technical aspects of watershed management, including appropriate natural resource management (suitable combination among vegetation types and between biological measures and engineering approaches etc).

However, at the beginning of planning, the project had limited knowledge of how to address the dual purpose of the project - environmental protection and poverty reduction/sustainable livelihood. This was because most previous projects managed by MWR were financed through grants with environmental management as the sole objective (and “helping farmers” was mostly a by-product). Therefore, the technical planning and design of the LPP project also adopted the MWR's standard watershed management approach.

The planning process was more a top-down approach, and unavoidably, it took an environment-oriented design approach with limited consideration of maximization of impacts on poverty reduction.

Furthermore, as the project was financed through loan, loan repayment considerations to a large extent influenced “targeting” of the project. Some of the poor households might be excluded from the project due to their capacity in loan repayment.

5.2 Implementation

Due to the nature of the projects planning and design process, farm households were not actively involved in decision making during planning or certain parts of project implementation. Except those purely private benefit activities, most of the public/collective benefit activities were implemented through so called “specialized implementation teams.”

Farmers participated partially in project activities as wage labourers or volunteer labour contributors. Therefore, the project did not build a sense of ownership among the local communities. However, the

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11 See Appendix 1 and 2 for detailed reports of these field reviews and case study quotes.
project successfully implemented large-scale physical activities due to its strong management and system of governance, particularly at county level to township level.

However, the critical land tenure issue was largely ignored in the project areas. As most of the lands available were waste land, and forest plantations and economic plantations were established without clear tenure arrangement, this became a very crucial issue which resulted from the planning practice described above.

In terms of capacity building the project contributed a great deal to both local people and project management staff. However, further analysis needs to be done to assess actual impact. Similarly, although the gender issue was mentioned in the project reports there was little detailed information available to support how it should be addressed by the project.

5.3 Monitoring and Evaluation
The project has a top-down project monitoring system focused on physical work rather than the socioeconomic aspect, as documented by the Monitoring & Evaluation team.

For the monitoring of socioeconomic indicators, the M&E design did not address major socioeconomic development issues (such as the equity and gender).

It is also noteworthy that monitoring was focused on the results rather than the process. There is limited information available to show the project process, but only the project outputs at the end. The participation of local farmers in monitoring was also very limited.

Although the LPP’s great physical works have had a major impact on the environment and also on the economic development of the target regions, the current monitoring and evaluation system can only show an “average situation.” No documented information is available that can provide a comprehensive analysis of project impacts on poverty reduction in terms of income generation for the poor or equity in terms of benefit distribution etc.

5.4 Summary
LPP has achieved a great result in terms of its dual purposes – environmental protection and poverty reduction. However, due to some of the identified issues in project planning, implementation and monitoring and evaluation, the project still needs to be improved to overcome some shortcomings.

Meanwhile the history of the project’s execution showed a clear improvement in the understanding of the importance of participation of local people. This arose both from learning experiences from other projects as well as from project management learning from the lessons of the project.
6. Best Practice in Watershed Development.

6.1 Base Principles of Watershed Development:
A review of a wide range of international watershed development activities undertaken with the support of various donors over the past two decades identifies the base principles on which best practice in watershed development is built and underpin the design and implementation of successful watershed development projects:

- Watershed development involves managing the natural resource base of watersheds to ensure environmental services are delivered to downstream communities while improving the sustainable productivity and wealth creation of local communities.
- Farm families and their rural communities are the actual managers of much of the natural resource base in most watersheds, often the more isolated, steep and critical headwater portions. They are the primary actors in improving watershed management. To be effective watershed development must be community-based.
- Farm families and their rural communities cannot improve their natural resource management when burdened with limited access to secure livelihoods, economic and social infrastructure and basic services. Watershed development requires the development of the rural communities in the watershed.
- Although farming families and their rural communities are keen to secure their sources of livelihood, improve their economic and social infrastructure and gain access to basic services, to be able to do so they usually require facilitation and timely delivery of other appropriate support services.
- Facilitating farming families and their rural communities to plan, implement, review and evaluate their own development in a participatory and inclusive manner enables them to build their capacity and capability to sustain their development and management of their portion of the watershed. Participation enables capacitation and sustainability.
- Decentralising to enable area managers in lower levels of governance to facilitate and support village and farm family development through timely delivery of appropriate services including materials and financial support, technical advice and practical training builds the institutional capacity to replicate and expand community-based watershed management. Institutionalising participatory and sustainable development is the real legacy of watershed development.

6.2 Best Practice Approaches to Watershed Development:
Further analysis of these base principles and international watershed development experience indicates that successful watershed development projects involve the application of the following best practice approaches:

1) Integrated: the extent that core natural resource management, poverty alleviation and capacity building objectives are effectively addressed by the project.

2) Decentralised: the extent development managers at micro and meso-levels are empowered and enabled to plan, implement and adaptively manage the project.

3) Participatory: the extent that all stakeholders at micro and meso-levels are involved in each stage of the project’s iterative development process and their ownership, experiential learning, empowerment and entrepreneurship are encouraged and facilitated.
4) **Natural resource management**: the extent that the watershed’s natural resource endowments are understood and managed for sustainable productivity within a culture of stewardship.

5) **Poverty alleviation**: the extent that livelihood opportunities are sustainably improved (particularly for the most poor and vulnerable members of the local community) in terms of food and income security and access to primary health care, functional education, micro-credit and commercial opportunities.

6) **Gender equity**: the extent that women and girls participate in project processes and benefit from project outcomes.

7) **Adaptive management**: the extent that lessons are extracted from each step and iteration of the project’s development process and are applied to improve it and the surrounding policy environment.

8) **Capacity building**: the extent that implementation and management of the project’s development process (including skills training and experiential learning) builds individual and group capability and institutional capacity (including in the commercial sector) to sustain and expand participatory watershed development across target portions of entire watersheds.

### 6.3 Principles, Approaches and Strategies of Watershed Development:

These base principles and fundamental approaches point to key strategies which enable the generation of a consistent development logic of principles, approaches and strategies as they apply to watershed development:

<table>
<thead>
<tr>
<th>Principles:</th>
<th>Approaches:</th>
<th>Strategies:</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ devolution</td>
<td>➢ equity</td>
<td>➢ subsidiarity</td>
</tr>
<tr>
<td>➢ integrated</td>
<td>➢ decentralised</td>
<td>➢ participatory</td>
</tr>
<tr>
<td>➢ livelihood focused</td>
<td>➢ market oriented</td>
<td>➢ gender sensitive</td>
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<tr>
<td>➢ capacity building</td>
<td>➢ Identify appropriate key institutions to champion integrated and participatory watershed development.</td>
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<td></td>
<td>➢ Engage key stakeholders including local government, business and non-government sectors and decentralise to meso &amp; micro-levels.</td>
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<tr>
<td></td>
<td>➢ Build on social structures and assets to devolve participatory development planning, implementation and overall management.</td>
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<tr>
<td></td>
<td>➢ Improve natural resource productivity and environment management by soil and water conservation and sustainable farming.</td>
<td></td>
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<tr>
<td></td>
<td>➢ Focus on improving sustainable livelihoods, target poor &amp; vulnerable groups and provide access to basic services.</td>
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<tr>
<td></td>
<td>➢ Engage commercial sector from outset for market and value adding.</td>
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<tr>
<td></td>
<td>➢ Promote formation of farmer-based associations for marketing, other service delivery and value adding.</td>
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<td></td>
<td>➢ Facilitate women groups to mainstream gender &amp; equity issues.</td>
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</tbody>
</table>
| | ➢ Promote piloting, participatory review, lesson-learning &
feedback in both directions to improve development management & policies.

- Use decentralised project management and participatory processes to build institutional capacity and individual capability to sustain, replicate and scale-up watershed development into other areas.

6.4 Best Practice Techniques of Watershed Development:

This same review and development logic also identified the following best practice techniques as they apply to the three core issues in watershed development:

**Best Practice Techniques:**

<table>
<thead>
<tr>
<th>Natural Resource Management</th>
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<tbody>
<tr>
<td>- Facilitate participatory village land use planning, micro-watershed and farm planning and development to control rainfall runoff and soil erosion (including terracing, ditching, water impounding and small-scale irrigation).</td>
</tr>
<tr>
<td>- Maintain groundcover on slopes and improve soil carbon in cultivations, facilitate community-based soil and water conservation planning and implementation with focus on controlling rainfall runoff and soil erosion.</td>
</tr>
<tr>
<td>- Facilitate diversified and sustainable farming based on organic fertilisers and improved biodiversity, horticulture, agroforestry and community forestry and cut-and-carry systems for penned livestock.</td>
</tr>
<tr>
<td>- Promote woodlots and alternative energy sources (biogas, solar).</td>
</tr>
<tr>
<td>- Secure individual and community resource access rights and community management agreements over conservation and common property areas.</td>
</tr>
<tr>
<td>- Encourage policies and procedure that enable the cash costs of generating off-farm public environmental benefits to be met by grant funds or paid by local and national governments or for villagers to be compensated for such investments.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poverty Alleviation</th>
</tr>
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<tbody>
<tr>
<td>- Facilitate participatory appraisal, gender analysis and preferential options for poor and vulnerable groups based on sustainable livelihoods approach.</td>
</tr>
<tr>
<td>- Facilitate participatory village, micro-watershed and farm development planning, land use diversification with livestock, perennial crops and agro-forestry to improve agricultural productivity, food security and hired labour demand.</td>
</tr>
<tr>
<td>- Assist village community to secure local water supplies for domestic and livestock purposes and other forms of diversification.</td>
</tr>
<tr>
<td>- Promote labour-based construction and maintenance of economic and social infrastructure such as access roads/tracks and village water supplies.</td>
</tr>
<tr>
<td>- Foster the development of community-based service delivery (e.g. group savings &amp; loans, micro-credit, paramedic primary healthcare, community clinics) including</td>
</tr>
</tbody>
</table>
farmers associations for key farmer technical extension, group marketing & input supply and to capture other commercial opportunities.

- Strengthen the coordination and delivery capacity of support service agencies operating from meso-level via their collaborative generation of an integrated area development framework plan and reference to village development plans.
- Engage commercial stakeholders and build close linkages with the commercial sector to support farm diversification, marketing and value-adding processing.
- Promote meso-level IAD plan as mechanism to attract investment including funds from provincial agencies to implement sectoral priorities evident in the plan.

**Capacity Building**

- Promote decentralisation of development management to micro and meso-levels (including participatory planning, implementation, monitoring, review and evaluation), the extraction of lessons and feedback for institution and policy development.
- Facilitate and empower farm families and their rural communities to manage their village development process and build skills from learning-by-doing.
- Promote the integration of support service delivery at meso-level by facilitating multi-sectoral integrated area development planning and business linkages.
- Invest in applied research and training to identify and expand opportunities for local development in all sectors with a focus on micro and meso-levels.

### 6.5 Watershed Development Best Practice Framework

<table>
<thead>
<tr>
<th>Key Issues</th>
<th>Core Objectives</th>
<th>Best Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification and improvement in macro-level factors and policies that enable watershed development:</td>
<td>Natural Resource Management:</td>
<td>participatory village, micro-watershed &amp; farm planning and development (including impounding and small scale irrigation);</td>
</tr>
<tr>
<td>- identifying a lead agency with the flexibility and capacity to champion watershed development;</td>
<td>- encourage sustainable resource management and the best use of rainfall, surface and ground-water;</td>
<td>maintain groundcover, improve soil carbon, implement community-based soil and water conservation planning and implementation;</td>
</tr>
<tr>
<td>- decentralising planning &amp; devolving governance;</td>
<td>- control rainfall runoff and minimise soil erosion;</td>
<td>participatory village landuse planning, community forestry and penned livestock, alternative energy sources;</td>
</tr>
<tr>
<td>- integrating siloed agencies &amp; coordinating support services delivery.</td>
<td>- conserving forests, other natural vegetation and biodiversity;</td>
<td>secure individual &amp; community resource access rights, improve productivity, generate community management agreements.</td>
</tr>
<tr>
<td>Scaling-up participatory watershed development</td>
<td>Poverty Alleviation:</td>
<td>participatory appraisal, gender analysis and preferential options for poor based on sustainable livelihoods approach;</td>
</tr>
<tr>
<td>- facilitating participatory processes.</td>
<td>- target poor and most vulnerable in the community and promote gender equity;</td>
<td>village, microwatershed and farm development planning, landuse diversification (livestock, perennials and agroforestry);</td>
</tr>
<tr>
<td>- expanding support service delivery.</td>
<td>- raise sustainable resource productivity, particularly of rainfed agriculture and non-arable lands;</td>
<td>labour-based construction &amp; maintenance of economic and social infrastructure, greater agricultural productivity and labour demand</td>
</tr>
<tr>
<td>Linking watershed development at the village level to management of macro-watersheds and upstream-downstream issues:</td>
<td>- create local employment (directly and indirectly);</td>
<td>strengthen community-based services (e.g. group savings &amp; loans) and strengthen agency coordination and delivery capacity;</td>
</tr>
<tr>
<td>- identifying government, business and other key stakeholders;</td>
<td>- enable access to support services (facilitation, credit, markets, training and technical advice);</td>
<td>secure local water supplies, build local services (e.g. midwife training to run</td>
</tr>
<tr>
<td>- enabling collaboration between NGOs, community organisations and</td>
<td>- improve primary health care and functional literacy.</td>
<td></td>
</tr>
</tbody>
</table>
The social and institutional arrangements that ensure equitable distribution of costs and benefits:
- identifying accountability for expenditures and outcomes;
- promoting equitable access to resources, services and opportunities;
- properly valuing water and other environmental services.

Community clinics) and strengthen agency delivery.

**Capacity Building:**
- devolve development management.
- engage rural communities, extracting lessons and improving policies.
- strengthen local institutional capacity in development management.
- strengthen support service delivery, micro-meso linkages and feedback (including to macro-level).

- decentralise development management to micro and meso-levels (participatory planning, implementation, monitoring & evaluation);
- facilitate and empower farm families and rural communities to manage their village development process and learn-by-doing;
- support the integration of support service delivery at meso-level (facilitate multi-sectoral integrated area development planning).
7.0 Best Practice Applied to Loess Plateau Projects

7.1 The Watershed Development Context of LPP:
As with virtually all watershed development projects, in its 12 years of implementation covering almost one million hectares, the Loess Plateau Projects have addressed a great diversity of environmental, economic and social situations and a range of development constraints and opportunities.

Despite its common genesis and geology there is considerable diversity in geomorphology across the Loess Plateau and in the sandiness of soil texture and fertility. Three main general topographies are recognised: severely eroded gullies and hills, residual plateau with ravines, and gently sloping wind blown sandy regions. These differences reflect the long-term interactions between the differing nature of the original loess deposits, the prevailing climate (particularly amount and intensity of rainfall and wind) and historical and current land use.

The importance of the latter is clearly evident in the impact of terracing under the project. Crop yields generally increase by at least 50% compared with those on previously sloping fields. Similarly, the improvement in the extent and diversity of natural ground cover that has spontaneously emerged on previously denuded hillsides within 5 years of the imposition of the grazing ban is indeed remarkable, not doubt reflecting the previous serious impact of both overgrazing and the mechanical damage that hard-hoofed animals can impose on a fragile environment.

There is also much variation in the types, productivity and returns from horticultural crops grown in various project areas due to climate, elevation, proximity to established markets and processors, and other factors. In Lingshi county the rising demand and price of coal is providing major off-farm income opportunities to many farmers with the result that there is very limited labour available for livestock raising or maintaining walnut plantations during their critical early years and women now assume greater responsibility for cropping which is more restricted to only the better lands.

As a result of LP2’s extensive promotion of alfalfa on sloping lands and loans for animals and permanent shelters in Huanxian County of Gansu Province, farm families see livestock raising as a major source of assured income to the extent that this portion of the project is over-subscribed. However, even in these situations the circumstances of individual farm families (e.g. inadequate family labour because son is working in town), may dictate that no livestock are raised but the alfalfa is harvested as a crop (2-4 times per year), dried and sold to a visiting buyer returning on average about Y300/mu/annum.

Since the early 1980’s usufruct rights to land have been ‘privatised’ to the extent that all collectively-owned land in the village has been allocated to individual farm families on the basis of need (number of family members) with each family receiving a minimum per capita allocation of class A land for cultivating staple crops (“capital land”) and a share of “sloping land”. These rights were secured by a 20 year contract with each farmer which have recently been rolled over into a 30 year contract. However, rights cannot be sold, mortgaged or leased and if not assumed by a family member on the death of the leaseholder revert back to the collective.

However, the increasing age of farmers, the education of their children and opportunities for other less arduous and higher paying employment in towns and cities, and the Chinese government’s deliberate policy of up-skilling and out-migration from poor rural counties all indicate there is a long-term trend

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12 Total coverage of LP1 and LP2 was 488,000 ha and 436,000 ha, respectively.
13 Improvements are less on poorer soils (e.g. in Lingshi county in Shanxi province it was reported that on new terraces improvements in crop yields may take up to 3 years to be fully realised).
towards commercialisation of agriculture in China based on land consolidation, mechanisation and an increasing market orientation.

Farmers participation in associations that improve their control and share of service delivery and value-added processing will accelerate the rise of modern commercial farming. However, the emerging challenge is to ensure the new farming systems are environmentally, economically and socially sustainable.

7.2 Applying Best Practice Approaches to LPP:
With regard to the diversity of watershed development situations on the Loess Plateau outlined above and the unique land management and local governance situation in China, the Loess Plateau Projects can be reviewed in terms of the best practice approaches identified from the study of international watershed development conducted in the initial portion of this review. For each criteria attention is drawn to instances where LPP practices could be improved, though these recommended best practice must be adapted by local development managers to suite local situations and accommodate emerging national polices and trends.

1. **Integrated**: the extent that a watershed development project integrates the activities relating to the core objectives of natural resource management, poverty alleviation and capacity building and that these are integrated with other development activities.

LPP was specifically designed to strike a balance between improving soil and water conservation and increasing farmer’s production and incomes it achieved these two inter-related outcomes to a major extent (see items 4 and 5 below). Converting sloping croplands into terraces directly removed the major cause of soil erosion while controlling rainfall runoff by terracing directly improved soil moisture, fertility and resulting crop yields.

Similarly, converting relatively unproductive sloping lands or narrow terraces into economic plantations and high quality forage plots significantly diversified landuse and livelihood opportunities in the form of livestock and horticultural crops. Although reforestation and revegetation of steep slopes for erosion control and construction of key dams for sediment control mainly benefited those downstream, the latter also generated varied additional areas of class A ‘bottom land’, often with an irrigation opportunity and significant income generating capacity.

In some instances (e.g. Binxian county in Shaanxi) even the project’s reforestation activity (which normally offered little income opportunity) involved the farmer’s contribution (about 30%) to the cost of establishing timber trees (black locust) in return for the opportunity to harvest timber to the maximum of 4m³/mu after 10 years. However, rather than individual farmer contracts, project staff considered these areas could have been more easily contracted as a block to the overall village for community-based management.

Although LPP’s NRM and poverty alleviation activities were somewhat less integrated with those involving capacity building the projects did introduced improved project and financial management procedures including competitive bidding and construction contracting, re-imbursement based on strict quality control and supervision and farmer loan repayment contracts for investment in farm development and livestock.

Project preparation and implementation management was also assisted by the preparation of detailed guidelines and manuals, the adoption of GIS and during project implementation by many person-days of theoretical and hands-on training of field staff and farmers alike.
However, as additional government programs increasingly targeted development of the Western Region during LP2 with similar environmental interventions (particularly sloping land conversion and sediment control), it became evident that the standard of implementation and impact were much improved where local government ensured these programs were integrated with the LPP. Where they remained separate the willingness of local government and farmers to utilise LP loans was constrained by the significant differences in investment policy. Furthermore, the critical link between environmental management and improved farmer incomes was not established.

It is widely recommended, including by LP project management at all levels, that in future World Bank projects the loan proceeds should be utilised to fund project investments in improving natural resource productivity and farmers incomes (e.g. by terracing, orchards and livestock) and government funds should be utilised for environmental improvement (such as reforestation and sediment control) where the majority of benefit is off-farm and in the public domain (mostly downstream).

It is also widely recommended that the LPP’s improved project planning, implementation and financial management, technical guidelines and other recommended best practice (see below) should also be applied to all government programs.

The devolution and decentralisation of the entire watershed development process (see Figure 1) is the key to effecting integration of all development activities including capacity building to village and county level (see Figure 4).

2. Decentralised: the extent development managers at micro- and meso-levels are empowered and enabled to design, implement and adaptively manage watershed development in their locality.

LPP management structure mirrored that of MWR with the Central PMO established in the YRCC Middle & Upper Reaches Bureau in Xi’an responsible for overall project management and coordination at macro-level including overall planning, supervision and technical direction, procurement, arranging study tours, coordination with the World Bank and consolidating project plans and reports.

Each provincial PMO worked with the CPMO to establish technical guidelines and regulations, organise trainings and study tours, generally supervise project preparation and implementation, conduct monitoring and evaluation and submit reports.

The County PMOs were the key elements of project management. They were responsible for planning and design of all project activities during preparation and implementation, for managing large and small construction, for reimbursement and granting loans and contracts. They were assisted by project staff stationed in each target township and by township officials who made linkages to village officials who in turn mobilised farmer groups and farmer involvement. The quality and dedication of county project staff (as well as township, village and farmer leaders) and their capacity to manage implementation is evidenced by the broad extent of project achievements.

However, the opportunity provided by the project to proactively and methodically engage the village community in managing development has been varied and limited. It is widely acknowledged that decentralising development management is essential for local capacity building. It enables a village community to be empowered to assess their own local situation, discuss and agree on the priority issues constraining the village community’s development, and decide on the location, content and timing of the development activities they will implement with project and other agency support. At that point village communities should also be enabled through hands-on training to manage subsequent implementation.

including supervising activities and tasks, monitoring progress and solving implementation problems, reviewing processes, evaluating outcomes and generally learning-by-doing how to sustain their development.

Possible improvements in the village development process based on local and international best practice are outlined below.

3. Participatory: the extent that all stakeholders at meso and micro-levels are involved in each stage of the iterative development process and the extent their ownership, experiential learning, empowerment and entrepreneurship are supported and facilitated.

LPP operated as a lead agency project with participation of other stakeholders limited to those designated as members of the various project leading groups (PLGs) established at each management level. Under the PLG mechanism meaningful multi-agency participation is usually constrained by each agency’s inward orientation, particularly the agency-bound funding process.

However, at lower levels of governance and development management there is a greater opportunity for other agencies to become involved and for inter-agency coordination to become a reality, particularly where driven by progressive county government officials with demonstrable enthusiasm and support for the project and for participatory development. This is particularly the case in those independently wealthier counties where local funds also help drive greater inter-agency coordination.

County Level:
As outlined in more detail in 7.3 below, a series of best practice strategies and techniques emerge from core principles and effective approaches. The opportunity exists for expanding stakeholder participation, inter-agency coordination and project impact at county level by applying established best practice in a manner outlined below:

- As a prelude to participating in an inter-agency workshop to discuss their perceptions of the county’s strengths, weaknesses, opportunities and threats\(^\text{15}\) all county agencies could be brought together and under the direction of local government officials each briefly present an assessment of the county situation as it relates to their sector. With prompting from the local officials and using the existing GIS capacity of the LP PMO the individual sectoral data sets could be digitised as necessary into map form at commonly agreed scales. Leading operatives in each agency could then be encouraged to collaborate in using overlay procedures and their local sectoral experience to generate an integrated assessment of the multi-sectoral situation in the overall county.

- The above ‘county situationer’ would illustrate the basic topography, land classes and other natural resources of the county as well as current land use, population centres and distribution, and the nature and distribution of economic and social infrastructure (transportation, power and water, hospitals and schools, industries and commercial centres). It would also identify the main natural resource assets, resource management issues and other development constraints and opportunities (e.g., flooding hazards, mineralisation, tourist spots, etc).

- The county situational assessment would provide the basis for the PLG to collaborate in generating a draft integrated development framework plan (IDFP) for the county that identified the priority development thrusts to be pursued in the medium to long term.

\(^{15}\) Arranged in a simple 2x2 matrix these perceptions provide a one-page SWAT analysis.
• This draft IDFP should then be presented to a broader group of key stakeholder (to include other agencies and commercial sector representatives such as agribusiness and finance) for their review and comment.

• With further revision and agreement the IDFP could be adopted as the basis on which county agencies (including the LPP and other project-based PMOs) prepare their individual annual action plans. By way of incentive agency annual action plans could attract financial contributions from the county government in proportion to how well they conformed to the county IDFP as well as coordinated with other agencies and stakeholders.

Village Level:
Villager participation in LPP implementation has increased during the project period.

However, in the absence of an overall village development planning process community participation has been focused on project activities of soil and water conservation. From the project’s perspective the main incentives for encouraging farmer participation were that it facilitated implementation while from the farmers’ perspective it was the opportunities the project provided to diversify and increase farm production and income.

While these incentives have obviously been effective in mobilising farmer involvement the project process also offers opportunities to generate greater engagement and ownership by the village community and for a village development planning process to be set in train that identifies other priority constraints on farm family and village development. These can then be addressed by the responsible agencies and other programs in a more structured and effective manner.

As outlined in more detail as a series of best practice techniques in Table 6 of section 7.3 below and demonstrated by other ongoing projects in the Loess Plateau area, the participatory village development planning process can be completed in a relatively brief period. The villagers themselves are trained to facilitate the participatory process to generate an integrated village development framework plan that comprehensively addresses the priority development constraints, and is ‘owned’ and fully supported by the village community, particularly by the action-oriented subcommittees elected by the villagers to provide leadership and active support for implementing the priority activities in their sector.

Although the various sectoral work plans resulting form the village development planning process are regularly monitored and updated by the villagers themselves based on experiences and lessons learned, the participatory village development planning (VDP) process needs be completed only once. The participatory VDP provides the mechanism whereby any sectoral agency can link its support service delivery directly into aware and informed villagers with confidence it will receive the full support and collaboration from village leaders and their community. The participatory VDP process also allows for local knowledge and experience to be applied to fine-tune agency programs and for villagers to become increasingly expert in managing and implementing local development through experiences and on-the-job training.

Similarly, VDPs enable support service agencies at county level to base their annual action plans on the specific requirements of predetermined target villages where local communities are already mobilised and primed to collaborate with the agency in implementing their programs and are most likely to maintain and sustain them.

As activities implementation moves into succeeding years the more experienced and expert villagers are also available to support the agencies as they extend their programs into other villages.

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16 Plan China’s activities in Chunhua county, Shaanxi province
As the participatory VDP process uses basic PRA techniques to identify the poor and more vulnerable families in the village community these too can be targeted with specific remedial measures that fit individual family circumstance.

The participatory VDP process utilises the formation and strengthening of women’s groups to assist with situation assessment and subsequent steps in the iterative village development process. These activated groups can enable gender issues to be addressed more constructively and also provide opportunities for additional sources of livelihood that improve gender equity (e.g. micro-credit schemes for livestock and other family-based enterprises).

4. Natural resource management: the extent that the sustainable productivity of an area’s natural resource endowments and ecological processes are understood and managed for sustainable productivity within a culture of stewardship.

The Loess Plateau Projects adopted a three-pronged approach to soil and water conservation that involved the following activities:

- Converting sloping cultivated fields to class A land by constructing terraces, thereby removing the source of 60% of soil erosion and sediment load.
- Limiting runoff and erosion from steeply sloping lands by establishing horticultural crops (apples, walnuts and persimmon), livestock forage (mostly alfalfa) and economic trees on old terraces and in newly dug pits and trenches and otherwise improving ground cover by planting protection forests and by effecting a total grazing ban.
- Constructing large key dams and smaller check dams in gullies to intercept runoff and sediment in the process and creating more class A land and irrigation opportunities.

These were all implemented to great effect. The major soil and water conservation impacts of the project have been well documented\(^\text{17}\) and are clearly evident in the field. The extent of natural revegetation with diverse groundcover is a feature of most project sites and demonstrates the critical importance of the grazing ban and the effectively of natural regeneration. Although initially a project initiative the grazing ban became national policy in the year 2000 so that enforcement was supported by SFA, Agriculture and local governments thereby giving it much greater impact.

It could be argued that the grazing ban was the most effective project intervention (after terracing) and undoubtedly the one with the greatest cost : benefit ratio. It directly enabled improved groundcover and erosion control on steeply sloping areas. It also allowed economic trees (orchards and timber) and improved forage to become successfully established and productive and together with penned livestock contribute significantly to farm family incomes. Strict imposition of the grazing ban may alone be sufficient to allow natural regeneration and erosion control on steep and less productive slopes thereby avoiding the costs of establishing protection forests. These forests appear unlikely to be managed effectively and or make a significant contribution to the restoration of the areas biodiversity.

An innovation noted in Binxian county of Shaanxi province allows for all protection forests established in narrow gully bottoms to be allocated to village farmers. These in turn contribute their labour and about one third (¥60/mu) of establishment costs (¥168) and sign a contract allowing them to harvest 4

\(^{17}\) In the six years to its completion in June 2005 LP2 treated 436,000 ha (102% of plan) including 90,000 ha of terraces, 180,000 ha of afforestation, 63,000 ha of economic trees and orchards, 57,000 ha or ‘artificial’ grasslands, and 57,000 ha of enclosed lands (natural regeneration). 115 key dams and 232 ‘warping’ dams were also constructed. The net effect was to increase vegetation cover in the project area from 17% to 33% and reduce sedimentation by 28 million tons/year (LP2 Implementation Completion Report. MWR 2005).
m/mu after ten years. This was also the basis on which production forests of the same species (black locust) were established on the less rugged portions of steep sideslopes and gully bottoms. However, as these contracts added significantly to the administrative burden the County PMO suggests that similar management contracts over areas planted to production and utilisable ‘protection’ forests could be contracted to the village community as a whole under an appropriate community forest management agreement.

However, as a result of the project’s success in improving the extent of groundcover afforded by economic trees, protection forests and natural regeneration over whole contiguous portions of whole subwatersheds, there is now a significantly greater risk that serious fire damage (both physical and financial) could result from even a minor fire event. As fire prevention is preferable to fire control fire hazard awareness and prevention practices must be a priority element in all village development plans. Similarly, VDPs should in future include plans for fire control. For example, reforestation areas in sloping lands should be planted in blocks with green or bare firebreaks (alfalfa or roads and tracks) strategically located in terms of prevailing aspect, slope and winds to provide firebreaks and/or opportunities for back-burning to control a fire’s spread.

5. Poverty alleviation: the extent that livelihood opportunities are sustainably improved (particularly for the most poor and vulnerable members of the local community) in terms of food and income security and access to primary health care, functional education, micro-credit and commercial opportunities.

LPP attempted to provide short, medium and long-term economic benefits to farming families by:

- Increasing grain output by expanding the amount of class A land that is most suited to cropping (chiefly by building terraces but also by ‘warping’ i.e. trapping sediment in valley bottoms and beside streams and rivers) and by enabling the raising of penned livestock.
- Developing orchards, economic forests and by providing other income opportunities on and off-farm (e.g. alfalfa sales, handicrafts and an increased demand for agricultural labour).
- Enabling the eventual harvest of forest trees and processing into lumber as well as value adding through agricultural processing (this mainly in the form of assured product markets).

The project has significantly increased grain production (by 7.5% on average) while the area cropped has actually reduced because the lower yielding sloping croplands have been removed from production. The overall net income of farmers more than tripled over the period.18

In most cases the full economic benefit from orchards established under the LPP is yet to be realised (sever drought constrained planting in the initial two years of LP2 and/or caused serious losses requiring replanting). Livestock raising is a growth industry in most project areas due to the availability of high quality fodder (alfalfa), assured price and ease of marketing. In comparison, grain prices have been depressed.19

The project has changed the structure of agriculture resulting in greater diversification (mostly fruit and nut orchards and livestock) and less reliance on annual crops. In some provinces (e.g. Shanxi) it has also significantly changed the structure of the livestock industry towards more cattle and less goats.

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19 Reportedly due to in-kind grain payments for sloping land conversion under the national program beginning 2000 that has expanded significantly since 2002.
6. **Market orientation**: the extent that market considerations drive enterprise selection and build strong partnerships with the commercial sector which enhance the sustainable livelihood and poverty alleviation impact of watershed development. This requires the involvement of agribusiness and other commercial sector representatives as primary stakeholders from the outset.

Although there has been a significant degree of commercialisation generated by LPP, particularly the emergence of juicing factories to process the poorer quality portion of a greatly increased apple crop and various expert contracting operations that undertook terrace construction and orchard and forest tree establishment, the project has not proactively reached out to the business sector to include them in project planning and implementation.

There is an obvious opportunity to link market-oriented and entrepreneurial commercial sector representatives into the project planning and management process as key stakeholders from the outset.

These commercial sector representatives may have interests in value-added processing of the various horticultural crops (fruit and nuts), service delivery (e.g. credit and input supplies, veterinary and transport-related services) and project-related contracting (e.g. terrace, road and check dam construction). However, following the precautionary principle due regard will need to be taken to ensure transparency and avoid conflict of interest or unfair commercial advantage.

7. **Gender equity**: the extent that women and girls participate in project processes and directly and indirectly benefit from village development activities and outcomes.

That women and girls can contribute to a village community’s social and economic development has long been recognised in China. LPP’s improvements to living standards and access to water, health service and education have improved the lot of both genders in project villages. However, with no specific project activity relating to women or participatory village development planning and implementation on which to form or strengthen women’s groups, the opportunities for specific improvements in gender equity have been limited.

Furthermore, recent expansion of small scale mining opportunities in some parts of the LPP (e.g. Lingshi County in Shanxi province) and the out-migration of menfolk to find employment in coastal cities can result in women being solely responsible for farming activities. However, in the absence of specific women reference groups or mechanisms that seek their opinions, the extent that these changes are having a major negative impact on women’s roles and responsibilities cannot be assessed.

8. **Adaptive management**: the extent that lessons are extracted from each step and iteration of the project’s development process and applied to increase efficiency and effectiveness of the process and improve the surrounding policy environment.

In LPP project (development) management was focused on lower and upper meso-levels (provincial and county PMOs) with no development management at micro-level. Macro level management was focused on the Central PMO based out of the Middle and Upper Reaches Bureau of the YRCC in Xi’an and functioned largely as the field office of the Foreign Assisted projects office of MWR.

The project featured close monitoring and supervision of field implementation. This was largely by way of quality control and to fulfil strict reimbursement requirements and procedures. Although this enabled problems with implementation to be quickly identified and resolved, the hierarchical nature and culture of MWR did not allow for actors from each level to participate in annual review and evaluation workshops that could focus on drawing lessons from recent experiences to be incorporated in the next round of annual work plans. The latter tended to come down from the provincial, prefecture to county level in the form of ‘quotas’
As a result the projects adaptive management was largely driven by the 6 monthly World Bank supervisions missions and the formal mid-term and completion reviews rather than by any systematic iterative learning process conducted by the day-to-day managers of the project’s development process.

Although farmer work groups and contracting specialist teams and their township and county supervisors refined their practices and procedures based on field experiences, these were somewhat limited by manuals and guidelines. Without project management at village or micro-level the project had to forego the opportunity for farmers and their village communities to take ownership of their own experiential learning process and utilise the project opportunity to more completely build their capacity to continue managing their own development.

9. **Capacity building**: the extent that implementation and management of project’s process (including skills training and experiential learning) builds individual and group capability and institutional capacity (including in the commercial sector) to sustain and expand participatory watershed development across target portions of entire watersheds.

“Capacity” in the context of watershed development refers to awareness, skills, knowledge, motivation, commitment and confidence necessary for continuous autonomous development and successful adaptation to ever-changing circumstances. This is the real legacy of any development project, but should be the outcome at each level of development management to be effective.

Capacity building is therefore equally an issue for farming families, village community groups and village development committees at the micro-level, farmer-based township farmers associations (in townships) and county and provincial governments (including government agencies) at meso-level as well as policy making central agencies at macro level.

Capacity building for watershed development goes beyond the traditional top-down enhancement of skills and knowledge through training and provision of technical advice and focused on enhancing genuine community engagement is all aspects of development, from situation assessment to planning, implementing and monitoring on-ground actions and review and evaluation of their impact to draw experiential lessons and re-planning Including adapting longer term development framework plans.

Therefore, in addition to the transfer of knowledge and technical skills capacity building should foster social cohesion within village communities and build both human and social capital.

To be most effective capacity building should:

- ensure that key stakeholders and priority issues are targeted to meet the priority environmental and poverty outcomes being sought;
- encourage partnerships between stakeholders;
- build on exiting capacity including local expertise and knowledge;
- be based on learning From each other through sharing resources, experience and expertise;
- should e based on principles of trust, mutual reciprocity and norms of action;
- encompass learning by doing and other appropriate forms of learning;
- be available to the entire community, particularly the poor and most vulnerable.

LPP supported managers and implementers at all levels with guidelines, supervision and hands-on and theoretical training as well as some study tours. In addition to adoption and refinement of new methods of financial management required by the World Bank (e.g. competitive bidding and contracting for all

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20 Human capital refers to the capability of individuals while social capital refers to the level of social networks, relationships and interactive processes within a community that is able to support individuals to exercise their capabilities.
manner of project works, repayment contracts for loan proceeds used by farmers, and reimbursement on basis of outputs following multi-level monitoring, cross-checking and supervision) the PMOs also benefited from application and procurement of GIS technology.

7.3 Application of Best Practice to LPP:

7.3.1 Situation Assessment:

- Priority watersheds identified at central and provincial level on basis of hydrological natural resource management and socio-economic criteria
- Project target areas (priority subwatersheds) are identified at provincial and county level using similar criteria, local knowledge, ground truthing and local consultation
- Target villages identified at county and township level using similar criteria, local knowledge, ground truthing and local consultation
- Village communities and component groups in priority target villages facilitated to collectively and separately undertake participatory situation assessment including problem and root cause analysis and assessment of natural resources, their status and trends.

7.3.2. Framework and Action Planning:

Village communities and component groups in priority villages facilitated to collectively undertake village development framework planning

- Implementation teams composed of primary interest groups facilitated to undertake initial action planning in a gender inclusive and culturally appropriate manner.
- Village development plans are integrated and address villager priorities of livelihood and economic and social infrastructure (secure resource access, village water supply, expanded and secure sources of livelihood, all weather physical access, access to primary health care and basic literacy and education) as well as improved natural resource management and reduced vulnerability to resource degradation.
- Key farmers and farmer groups prepare micro-watershed development plans and farm development plans to identify major improvements to natural resource management, sustainable land use and livelihood options.
- Village framework and action plans are assembled at county level to review materials, technical, training and other support service requirements for inclusion in county plans.

7.3.3 Implementing and Monitoring:

- Project villagers enabled to mobilise local labour and other internal resources in an equitable manner to contribute to construction of economic and social infrastructure, and delivery of basic services with preference for poorer and most vulnerable households and women
- Key farmers and farmer groups piloting micro-watershed development and farm development planning to refine management activities and test land use and livelihood options
- Implementation groups regularly monitoring progress against plans, identifying reasons for delays and solutions and innovations that emerge to solve them
- Appropriate materials, technical support, practical on-the-job training and other support services are delivered on time to village implementing teams.

7.3.4. Review, Evaluation and Replanning:
- Village leadership and implementation groups conducting periodic reviews and evaluations of implementation experiences, drawing and documenting lessons to update the framework plan and prepare the action plans for the next iteration.
- Village leaders and leaders of implementation groups review in collaboration with county representatives review and evaluate the management of the entire development process from the initial situation assessment and update plans and guidelines.
- Village leaders, community members and county support staff are increasing capable of autonomously managing and supporting integrated village and watershed development and replicating and sustaining the process in other villages and watershed.

7.3.5 Examples of Application of Best Practice to LPP:
Examples of the application of the watershed development process at provincial, county and village/farm family level are outlined below in Tables 4, 5 & 6, respectively.

Table 4: Application of Best Practice at Provincial Level

<table>
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<tr>
<th>Development Process</th>
<th>Provincial Level (i.e. upper meso level)</th>
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<tr>
<td></td>
<td>- Supervision and Support -</td>
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<tr>
<td>Development Management</td>
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|                                      | • Representatives from central level discuss watershed management issues and priorities with leadership of provincial administration.  
• Provincial administration identifies lead agency to provide supervision and support to counties in priority subwatersheds  
• Lead agency forms independent monitory and evaluation group and audit team |
| 1. Situation Assessment              |                                         |
|                                      | • Watershed management approximates water resources management (wsm ≈ wrm)  
• Assess on basis of hydrological function and use watershed hierarchy to isolate problems and prioritise sub-watersheds  
• Identify local administrative areas (county) involved in priority sub-watersheds  
• Check what other relevant central programs are planned/already ongoing in local areas  
• Coordinate with lead agencies of these programs.  
• Check with Central that policy framework is supportive |
| 2. Framework & Action Planning       |                                         |
|                                      | • Contact local administrations of counties involved in priority subwatersheds, inform of findings and discuss implications and opportunities for inter-agency collaboration.  
• Check what relevant local programs are planned/already ongoing (cross check other central programs)  
• Devolve local area planning to county administrations in priority subwatersheds  
• Suggest formation of an inter-agency team to plan and support area development including watershed management and poverty alleviation activities in coordination with other programs. |
| 3. Implementing & Monitoring         |                                         |
|                                      | • Supervise and assist the preparation of an integrated area development framework plan annual action plan in target counties  
• Establish an independent progress monitoring and audit team. |
| 4. Reviewing, Evaluating and Replanning |                                         |
|                                      | • Supervise and facilitate annual reviews of integrated area development action plan of each county. Evaluate and draw lessons for improving subsequent action plans for service delivery to target villages.  
• Identify policy bottlenecks and inter-agency coordination problems and refer to central level. |
Table 5: Application of Best Practice at County Level

<table>
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<th>Development Process</th>
<th>County Level (i.e. lower meso level)</th>
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<tr>
<td></td>
<td><strong>- Supervision and Services Delivery -</strong></td>
</tr>
<tr>
<td>Development Management</td>
<td>- Representative from provincial leadership discusses watershed management priorities and development opportunity with leadership of county administration. Advises formation of inter-agency county planning and development team. - Inter-agency county planning and development team formed under county leadership, oriented and charged with preparing integrated area development plan covering priority subcatchments - County administration form and orient independent county monitoring group and audit team</td>
</tr>
<tr>
<td>1. Situation Assessment</td>
<td>- Watershed development equivalent to integrated area development and water resources management (wsm $\approx$ iad and wrm) - Assess on basis of sectoral priorities including for NRM how land uses are compatible with land classes as well as provincial and county hydrological priorities</td>
</tr>
<tr>
<td>2. Framework &amp; Action Planning</td>
<td>- Prepare integrated area development framework plan for county and utilise watershed hierarchy to isolate problems and prioritise sub-watersheds - Discuss process and priorities with county then township administration for comment, revision and agreement. - Identify local villages involved in priority sub-watersheds and form service delivery teams - Prepare initial annual action plan including facilitation and service delivery to priority villages</td>
</tr>
<tr>
<td>3. Implementing &amp; Monitoring</td>
<td>- Discuss development opportunity with leadership of priority villages and entry of facilitator to assist village development. - Supervise village planning and implementation processes, participatory progress monitoring and independent progress and process monitoring and audit. - Facilitate timely service delivery to prioritised villages by integrated service delivery teams including procurement of materials, technical support and practical training.</td>
</tr>
<tr>
<td>4. Reviewing, Evaluating and Replanning</td>
<td>- Supervise and facilitate regular reviews of integrated area development plan for progress against plans and monitoring reports. Evaluate and draw lessons, improve and action plans of service delivery teams. - Facilitate comprehensive end of period reviews by county integrated area development team, involved village leaders and township officers, discuss and draw lessons, update IAD framework plan and prepare next annual action plan of service delivery teams.</td>
</tr>
</tbody>
</table>
### Table 6: Application of Best Practice at Village and Farm Level

<table>
<thead>
<tr>
<th>Development Process</th>
<th>Village and Farm Family Level (i.e. micro-level) - Implementers and Natural Resource Managers -</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Village leadership discusses development opportunity with facilitators, managers and governance representative from meso-level.</td>
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<td></td>
<td>Facilitator orients and collaborates with village leadership to assist orient existing community groups or form special interest groups (e.g. poor HH &amp; women) and implementation teams.</td>
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<td></td>
<td>Orient and train village leaders, community groups and implementation teams in activities involved in each step of the village development process</td>
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<tr>
<td></td>
<td>Form and orient independent village monitoring group and audit team</td>
</tr>
<tr>
<td>1. Situation Assessment</td>
<td>Watershed development equivalent to integrated village development</td>
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<tr>
<td></td>
<td>Watershed management approximates village water resources management, micro-watershed and farm management (wsm ≈ nrm)</td>
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<tr>
<td></td>
<td>Discuss process and establish collaborative relationship with village leadership, other community groups.</td>
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<tr>
<td></td>
<td>Facilitate PRA and utilise watershed hierarchy to identify and assess priority micro, 2nd &amp; 3rd order watershed on basis of hydrological function, NRM and livelihood opportunities.</td>
</tr>
<tr>
<td>2. Framework &amp; Action Planning</td>
<td>Facilitate participatory village development framework planning with focus on poor, women, priority micro-watersheds and key farmers</td>
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<tr>
<td></td>
<td>Facilitate implementation teams to prepare initial action plans, monitoring indicators for priority activities and tasks including procurement and service delivery from county level.</td>
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<tr>
<td>3. Implementing &amp; Monitoring</td>
<td>Facilitate implementation teams to carry out activities and tasks with regular participatory monitoring to identify problems, agree solutions and document successes</td>
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<td></td>
<td>Facilitate service delivery including procurement of materials, technical support and practical training.</td>
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<td></td>
<td>Independent monitoring by village leadership and county level</td>
</tr>
<tr>
<td>4. Reviewing, Evaluating and Replanning</td>
<td>Facilitate regular implementation team review of progress against plans &amp; monitoring reports. Evaluate and draw lessons, improve and update plans and work programs</td>
</tr>
<tr>
<td></td>
<td>Facilitate comprehensive end of period reviews by village community, discuss and draw lessons, update village development framework plan and prepare next action plan</td>
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</tbody>
</table>

### 7.4 Important Considerations for LP3:

- Given the likely absence of IDA support one issue urgently needing policy development is distinguishing private from public benefit and associated repayment responsibility. Under current conditions poorer counties risk exclusion from LP3 unless co-financing can be arranged wherein bilateral grant funds cover investments in environmental services (such as key dams, check dams and protection forests).
- The diversity of environmental, economic and social situations and development opportunities evident across the Loess Plateau at village, township and county level dictate that project management be decentralised to the county level and that village communities and farming families become fully engaged participants in all phases of the project’s development process at village level.
- It is absolutely critical to the success of any follow-on Loess Plateau project that the key staff of Provincial and County PMOs with years of experience in LP1 and LP2 be retained and not dissipated during the period leading up to further implementation.
• Preparation of LP3 should begin as soon as possible using a participatory approach wherein the existing Provincial and County PMOs prepare the project with hands-on support in participatory project preparation approaches, strategies and techniques.

• LP3 should be prepared as a ‘rolling design’ whereby initial project preparation involves only those villages and townships in each county which will undertake activities in the initial year of implementation. Similarly, activities in the initial year of implementation would involve participatory preparation of project activities in the villages and townships targeted for the second year, and so on. At each stage key stakeholders in subsequent cycles of planning and implementation would be provided hands-on training in the approaches, strategies and techniques of the project’s development process thereby building the local capacity for its coverage to expand across additional townships and villages of each target county.

• Other important elements of a LP3 preparation process should include the following:
  1) A stakeholder and policy analysis and development process initiated as soon as possible at the central or macro-level with MWR as the main actor and involving other key policy and NRM agencies, the Poverty Alleviation program and also those institutions involved in total catchment management (e.g. YRCC).

  2) Stakeholder and support service analysis at provincial level to build collaborative linkages with the county and township governments, the commercial sector (particularly agribusiness, finance and transportation) and with other provincial NRM agencies (e.g. forestry, agriculture), key social agencies (education, health) and with the Poverty Alleviation program.

  3) The commercial sector involved as a key stakeholder at every level, particularly agribusiness processing and value-adding industries at county level but also commercial input and credit suppliers as well as the promotion and development of township farmer’s associations and village cooperative ventures.

  4) Promotion of farmer-based associations to provide technical extension and other support services (e.g. marketing and credit support) and subsequent opportunities for farmer’s investment in collaborative joint ventures with agribusiness firms and entrepreneurs.

  5) A focus on farm profitability rather than productivity and support for farmer-based development of sustainable and diverse farming systems including organic and low-input technologies which improve soil fertility, nutrient management and local biodiversity and capacity to withstand droughts and other climatic challenges.
Annexes & Attachments
### Annex 1. Selected International Watershed Management Projects Demonstrating Best Practice in WSM

<table>
<thead>
<tr>
<th>Country</th>
<th>Ref No.</th>
<th>Project Title</th>
<th>Watershed Management Best Practice Criteria Evident in the Project</th>
<th>Most Notable Features</th>
</tr>
</thead>
</table>
| Uganda, South Africa, Zimbabwe & Ghana | 1       | Experiences of community-based planning: lessons from Uganda, South Africa, Zimbabwe and Ghana | A B C D E | A comparative report of action research in community-based planning and factors facilitating community participation, decentralisation, local government coordination and support to enable improved plans, services, community control and community action. Lessons learned include:  
- ensure poor people are included in planning, planning process is realistic, practical, uses available resources within local government and linked with existing local government planning;  
- ensure planning is people focused and empowering, is from vision and strengths (not problems), is inkted to a legitimate structure (one that can take funds), is holistic (multi-sectoral), is not one-off (is part of a longer process), promotes mutual accountability & commitment to implementation. |
| Central America, Bangladesh, Bolivia, Costa Rica, Ecuador, Guatemala, Honduras, Niger, Peru, Thailand and Uganda. | 2       | Improving watershed management in development countries- A framework for prioritising sites and practices | A B C D E | Most watershed management projects implemented in the last 25 years in developing countries have tried to combine poverty alleviation and resource conservation goals, but neither of these goals has been satisfactorily accomplished For the interventions to have a positive impact on watershed conditions, the authors propose several general principles:  
- Concentrate on contiguous sites defined by the threats to the landscape, chances of success and cost-effectiveness of the investment, where landscape & economic improvement will be self-evident  
- Include all stakeholders in watershed management rather than only the poor farmers in the target areas, as is the current practice among most development organisations.  
- Select preventive rather than curative activities, and base them on land use capacity and income generating potential for maximum cost-effectiveness.  
- Treat farmers, large and small, as informed clients to whom development organisations are accountable and who are capable of deciding what is good for them in the light of their resources, priorities and values. |
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<tr>
<th>Country</th>
<th>Ref No.</th>
<th>Project Title</th>
<th>Watershed Management Best Practice Criteria Evident in the Project</th>
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</table>
| Kenya   | 3       | Participatory technology development with resource-poor farmers: maximising impact through the use of recommendation domains | A:B:C:D:E=5:5:3:2:3                                              | Technologies that have been developed with a small number of resource-poor households can have large recommendation domains.  
  • The identification of recommendation domains can be a valuable tool in developing targeted dissemination strategies for specific technologies and prioritising technologies for dissemination.  
  • Development agencies undertaking participatory technology development (PTD), particularly NGOs, should broaden their horizons and put greater effort into promoting effective technologies they developed with farmers to the majority of potential adopters.  
  • When developing dissemination strategies development agencies should consider using recommendation domains to identify the most promising areas for adoption of effective technologies that have been developed.  
  • Provided sufficient attention is given to scaling up strategies from the outset, PTD can be highly cost-effective for developing technologies for the resource poor and deserves to be more widely used by both research and development agencies. |
<p>| Worldwide (Africa, S America, India, China, Indonesia) | 4 | Democratic Decentralization of Natural Resources: Institutionalizing Popular Participation | A:B:C:D:E=5:3:5                                                  | To increase environmental management efficiency and improve equity and justice for local people, many environmentalists have advocated participatory and community-based natural resource management (CBNRM). Democratic decentralization is a promising means of institutionalizing and scaling up the popular participation that makes CBNRM effective. However, most current “decentralization” reforms are characterized by insufficient transfer of powers to local institutions, under tight central-government oversight. Often, these local institutions do not represent and are not accountable to local communities. Decentralization requires both power transfers and accountable representation. To identify appropriate and sufficient powers to transfer, principles of power distribution, called environmental subsidiarity principles, would be of great use in guiding the division of decision-making, rule-making, implementation, enforcement, and dispute resolution powers among levels of government and among institutions at each level. Security of power transfers also matters. Many central government agents fear, and therefore block, decentralization. By preventing transfers of meaningful powers to local democratic bodies, or transferring them to local agents who are only accountable to central government, environmental agencies and other line ministries prevent decentralizations from moving forward. To date, the potential benefits of decentralization remain unrealized because government discourse has not resulted in the enactment of necessary laws, or where decentralization laws do exist, they have not been implemented. The review details the logic of decentralisation and lists key recommendations for effective decentralisation for CBRM. |</p>
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<th>Country</th>
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<tr>
<td>Shri Lanka</td>
<td>5</td>
<td>Innovations in Development Practice: Outline Case Studies from North Central Province, Shri Lanka.</td>
<td>A 5 B 3</td>
<td>Documents a series of case studies of innovations in critical areas of development practice:</td>
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<td>▪ Using group monitoring of micro-credit repayments, in place of collateral.</td>
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<td>▪ Vetever Grass as a means to inhibit soil erosion.</td>
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<td>▪ Improving dry-zone water management, through better targeting of needs and storage.</td>
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<td>▪ Social mobilisation through organisation of interest groups focused on specific farm activities.</td>
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<td>▪ Health and nutrition training.</td>
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<td>▪ Post harvest storage facilities, leading to higher market prices.</td>
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<td>▪ Adding a third annual crop through improved water management.</td>
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<td>▪ Formation of goat rearing Interest Group among crop farmers, as alternative sources of income.</td>
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<td>▪ Use of fuel efficient stoves by women to reduce woodland destruction</td>
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<td>▪ Health and nutrition training for both husband and wife.</td>
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<td>Mongolia</td>
<td>6</td>
<td>Arkhangai and Khuvsgul Rural Poverty Alleviation Project</td>
<td>A 5 B 3 C 4 D 4</td>
<td>This IFAD financed project in two Mongolian provinces developed a number of innovative features</td>
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<td>that assist poor rural families to get out of poverty. The major highlight to date has been the</td>
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<td>livestock re-distribution scheme that supports herders to restock their herd up to a viable level,</td>
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<td>thus enabling them to reach a sustainable livelihood.</td>
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<td>The livestock re-distribution strategy contains</td>
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<td>many elements for replication and its success has encouraged donors like UNDP and the World</td>
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<td>Bank to employ a similar scheme in areas affected by the dzud of 1999/2000.</td>
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<td>Transparency and strong beneficiary participation at all levels in the selection process ensure that the poorest families have been reached by the project.</td>
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<td>Radio broadcasting of project information is an innovative and very useful feature that ensures transparency and flow of information to all</td>
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<td>participants while the high degree of transparency and participation should secure the</td>
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<td>sustainability of project activities in the near future.</td>
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<tr>
<td>Guatemala and other countries in C America.</td>
<td>7</td>
<td>What Really Works in Watershed Management? Some Lessons for Guatemala</td>
<td>A 2 B 2 C 3</td>
<td>Traditional short-lived projects and programs that fail to recognize that practices introduced must</td>
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<td>spread spontaneously once external assistance ends will have minimal impact on the watershed.</td>
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<td>For efforts to have a visible impact on the landscape and on the welfare of a significant proportion</td>
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<td>of hillside farmers, designers must look beyond the final evaluation of the project and beyond</td>
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<td>recent isolated “successes” in selecting future approaches and practices for financing and carefully</td>
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<td>scrutinize experiences dating back five or ten years, to learn what is likely to catch-on at a</td>
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<td>significant scale. Similarly records must be kept in such a way that years from now someone can</td>
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<td>learn from previous experiences. Farmers must be turned into clients and empowered to decide</td>
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<td>the assistance that needs to be provided. This change would also demand accountability from</td>
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<td>extension service providers and donors. Payment to these service providers could be based on</td>
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<td>the results they deliver. Wiser use must be made of powerful market incentives to bring about</td>
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<td>desirable changes in land use. The author then provides a series of practical and valuable tips for</td>
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<td>designing effective watershed management projects.</td>
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<td>Country</td>
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<td>Bolivia, Colombia, India, Nicaragua, Uganda and Vietnam</td>
<td>8</td>
<td>Can Extension Contribute to Rural Poverty Reduction? Synthesis of a Six Country Study</td>
<td>4</td>
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<tr>
<td>Country</td>
<td>Ref No.</td>
<td>Project Title</td>
<td>Most Notable Features</td>
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| Developed countries in Europe, N America and Australasia | 9       | Improving Farmers’ Access to Advice on Land Management: Lessons from Case Studies in Developed Countries. Agricultural Research & Extension Network | Governments that privatised their advisory services still try to influence farmers’ land use and land management decisions in order to achieve policy objectives. Concurrently farmers need access to increasingly complex and varied information & advice when making land use & business decisions. This study reviews the ways advisory services are provided in developed countries and find that:  
  • Design & delivery of advisory services must be based on an understanding of how and why land managers make decisions, particularly ones involving substantial change in management strategy.  
  • Land managers benefit from having an array of diverse services and providers, but may require professional facilitation support to identify those most appropriate to their circumstances.  
  • Land managers develop new knowledge through a learning process, not by simple ‘knowledge transfer’. They value schemes facilitating learning, confidence building and motivation, particularly where major changes in land use are being considered or promoted, where new skills are required in order to put these into effect, and where collective agreement or action is needed.  
  • Governments should continue to fund advisory services which contribute to policy goals by supporting private sector providers and not attempt to over-manage advisory services.  
  • Government should continue to fund the provision of services because of the significant market failures experienced in both the supply of, and the demand for, advice and information. However, there should be a presumption against growing a public sector capability for delivering advice and information: government funding is more efficiently used to support a diverse set of programs and services in the private (commercial as well as not-for-profit) sector.  
  • Wherever possible, governments should avoid prescribing ‘acceptable’ decisions and behaviour for land managers, in favour of the development of local solutions and strategies. |
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<tr>
<th>Country</th>
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<th>Most Notable Features</th>
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<tr>
<td>CGIAR System</td>
<td>10</td>
<td>Understanding Participatory Research in the Context of Natural Resource Management – Paradigms, Approaches and Typologies.</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>In the field of natural resource management (NRM), participatory research is still in its infancy and a range of activities are labeled ‘participatory research’. Three prototypical approaches to innovation development and their attributes are described and used to interpret current practice.</td>
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<td>• Many NRM research initiatives define highly aggregated overall goals, but lack a clear strategy of how to reach these impacts and induce changes through research.</td>
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<td>• The research focus is often derived from a supply-led and discipline-led perspective &amp; assumed that research outputs can be fed into an existing, functioning research-development continuum.</td>
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<td>• ‘Participatory research’ is often limited to ‘downstream’ applications &amp; seen as an instrument for applied and adaptive research to improve technology transfer. Increasingly examples demonstrate longer term participatory learning &amp; action research processes while pursuing strategic research questions in NRM.</td>
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<td>• To enhance conceptual clarity a framework is suggested which differentiates three prototypical approaches to innovation development: the ‘transfer of technology’ approach, farmer first, and participatory learning &amp; action research. They can be described along key attributes, such as assumptions, research objectives, types of participation, roles of different actors, processes and research methods.</td>
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<td>• Research managers should analyse their NRM research initiatives within the framework presented and select more systematically between the options to explore an appropriate strategy towards impact.</td>
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<td>• An analysis of the innovation system within a given context is needed to verify there is a functioning ‘research-development continuum’, and to review the roles and mandates of international and national research, extension and other development agencies accordingly.</td>
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<td>• In NRM research, more attention needs to be paid to participatory learning and action approaches for strategic research i.e. for generating strategic knowledge, methodological principles and approaches which have significance way beyond local cases.</td>
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<td>• Participatory learning &amp; action research require a shift in ‘professionalism’ among researchers from disciplinary experts towards interdisciplinary facilitators effective in conceptualisation.</td>
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<td>Country</td>
<td>Ref No.</td>
<td>Project Title</td>
<td>Watershed Management Best Practice Criteria Evident in the Project</td>
<td>Most Notable Features</td>
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| Bangladesh and  | 11      | Poverty Reduction Programs Using an Actor-Oriented Approach: Examples           | A 3 B 2 C 3 D 3 E                                                   | This paper explores the use of actor-oriented approaches in natural resource-based development. It begins by reviewing the need to bring an analysis of actor linkages, coalitions and information flows higher on the agenda in planning, implementation, monitoring and evaluation. Various tools which could assist in doing this are introduced and their use is illustrated in case studies of natural resource-based research and development (R&D) projects in Nepal and Bangladesh. It found:  
• Use of actor-oriented tools can change perceptions of development actors, encouraging them to engage with the social and political context of their activities in a productive way.  
• Actor-oriented tools provide practical ways to monitor, document, and assess and thus legitimise crucial institutional strengthening activities.  
• Actor linkage analysis and coalition building for effective and sustainable development should be legitimized and rewarded.  
• Development interventions should include actor-oriented tools in development planning, implementation, monitoring and evaluation.  
• Development agencies should employ and integrate professional staff with actor-oriented social science skills (e.g. applied anthropologists, evaluation specialists, applied ethnographers) into their mainstream activities. |
<p>| Nepal           |         | from Natural Resources Innovation Systems                                     |                                                                    |                                                                                                                                                                                                                      |</p>
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<tr>
<td>Uganda, Zimbabwe, Ghana and South Africa,</td>
<td>12</td>
<td>Manual for Community-Based Planning</td>
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<td>This manual was developed as part of a project aiming to develop systems for community-based planning that can be applied countrywide: To improve the quality of plans and services, to hand over responsibility for services, and as part of an empowerment process. Community planning must be empowering for communities, but must also lead to improved local authority and other agency plans and services. The approach assumes that many stakeholders need to be included in the planning process, including clients, local governments, service providers, traditional leaders, local interest groups and business. Key principles that this approach to CBP are based on include:  - we need to ensure that poor people are included in planning  - systems need to be realistic and practical, and the planning process must be implementable using available resources within the district/local government, and must link in and integrate with existing processes, particularly local government planning  - planning must be linked to a legitimate structure that can take funds  - planning should not be a once off exercise, but should be part of longer process  - plan must be people focused and empowering  - we must plan from vision and strength/opportunities not problems  - plans must be holistic and cover all sectors  - must be learning oriented  - planning should promote mutual accountability between community and officials  - systems should be flexible and simple  - there must be commitment by councillors and officials and there must be someone responsible to ensure it gets done  The clients of the planning are communities/interest groups/individuals, local politicians as well as technical staff of local governments, service providers (including national and provincial government agencies, and NGOs)</td>
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<td>Philippines</td>
<td>13</td>
<td>How Can CBWM Research Influence National Water Policy? A Philippine Case</td>
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<td>This paper describes a process of communicating Community-Based Water Management (CBWM) research results to policy. It describes the method as “loops of a spiral”, i.e., multi-stakeholder and participatory policy analysis where policy makers and researchers work together toward a policy solution. This process was done in Lantapan, Bukidnon, Philippines, and some of the lessons learned were brought up to the national level. Three key issues comprised the policy advocacy agenda: a) a rapid degradation of water resources even in remotely rural communities, b) a community-based methodology for monitoring water quality and trends, and c) a watershed-based planning approach for water management. Scaling up of the research results, however, meant that community-based researchers needed to partner with certain national agencies for policy advocacy. The strategic choice of partners facilitated the snowballing of the policy cause not just within national agencies but also with sub-national entities. The solid research done with community participation, the local policy impacts, and the strategic partnerships forged may be considered as factors that define a possible best practice</td>
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<td>Uganda, South Africa, Zimbabwe and Ghana</td>
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<td>Upscaling Community Driven Development: Learning From Experience on Community-Based Planning</td>
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<td><strong>From 1998-2000, Khanya Managing Rural Change undertook action-research funded by the DFID looking at 'Institutional Support for Sustainable Livelihoods in Southern Africa'.</strong> Prepared for a World Bank workshop on <em>Upscaling Community-Driven Development</em>, this paper notes much effort has focused on developing decentralised institutions, such as local government, to support local development but frequently this has not extended to seeing how to link these decentralised institutions with citizens. Resources often get captured by these meso-institutions and do not reach the community. During this project a methodology was developed for effective participatory planning for use at sub-local government level using an empowering and vision-based methodology. This has been applied in 6 local governments in Uganda, South Africa and Ghana covering over 1.5 million people and is being taken forward nationally in SA, Uganda and Zimbabwe. This offers an opportunity to really mainstream participation and move it from rhetoric to a systematic process of assisting local people to be active and involved in planning and managing their own development, claiming their rights and exercising their responsibilities. The upscaling process looks positive and likely to succeed in Uganda and SA, with learning from previous mistakes and a high level of broad-based commitment to make it succeed. This report highlights the lessons from the upscaling process.</td>
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| Global development experience   | 15      | Participatory Watershed Development                                             | 4 | 4 | 4 | 3 | 3 | **Watershed development (WD) aims to establish an enabling framework for the integrated use, regulation and development of land and water resources in a particular area in order to reduce poverty. The area of operation can be defined at various physical scales: The selection of watershed areas should be based on a combination of biophysical criteria, social criteria, and institutional criteria. Local communities play a central role in the planning, implementation and funding of activities within participatory WD programs. The exact composition of any given program should be determined with them.**  
Successful projects - many of which have involved NGOs - have facilitated rather than directed WD activities. They have worked with local people as equal partners and they have been flexible in their design. They have also placed a particular emphasis on the development of strong local groups. Specific capacity building efforts may be required to ensure that women, indigenous and other marginal groups are involved in decision-making about activities and the use of funds.  
Effective monitoring of participatory WD is made difficult by the multiple objectives (social, economic and environmental) of programs and trade-offs between environmental protection and short-term productivity gains. At the community level, monitoring can become a powerful force for participation. Performance indicators should be negotiated with local people, government organisations, research organisations, environmental lobby groups etc., who should then be made responsible for tracking progress and proposing changes to the program where necessary. There is still relatively little quantitative data on the scale of environmental or social benefits of WD. Success at a small scale may be difficult to scale-up to the level required to achieve a significant impact on poverty reduction. |
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<td>Global development</td>
<td>16</td>
<td>Decentralisation and Governance</td>
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<td>Decentralisation aims to address failures to foster development and reduce poverty. This key sheet deals mainly with administrative and fiscal aspects of decentralisation. Over the last few years the decentralisation debate has focused on:</td>
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<td>- the advantages of decentralised governance in terms of poverty reduction, government accountability, responsiveness of public policies and service delivery;</td>
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<td>- the limitations to what decentralisation can achieve and the balance between centralisation and decentralisation: which areas are best addressed by which level of government?</td>
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<td>- the reform of the state and systems of governance that decentralisation requires and facilitates, as decentralisation alters the structure and institutions of governance;</td>
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<td>- the political, financial, administrative and capacity preconditions for successful decentralisation. Since 1980s developing countries have increasingly adopted decentralised governance transferring certain planning, financing and management tasks to local units of central agencies ('deconcentration'), lower levels of government ('devolution'), or semi-autonomous authorities ('delegation'). Deconcentration and delegation imply a reorganisation of central government while devolution means relinquishing political power. There is no standard model. Its impact depends on the original objectives and design, institutional arrangements and implementation. Sustained political will is essential. To avoid inefficiencies in the institutional arrangements (Haiti, Zambia), decentralisation must be part of an integrated development policy reflecting locally owned models and the country’s commitment. A coherent set of rules must regulate the responsibilities, functions, resources and relationships of the different levels of government. re the national political process. The regulatory framework must contain the right mix of incentives to avoid or correct destabilizing effects and promote gender equality. National governments and central line ministries must retain important policy, regulatory and supervisory roles.</td>
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<td>Global development experience</td>
<td>17</td>
<td>Food Security</td>
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<td>The livelihoods approach considers people’s assets and constraints and is a valuable tool for finding ways to improve food access of poor people. It also helps an understanding of transitory food insecurity and vulnerability: e.g. how changes in vulnerability (HIV infection, drought), institutions (market reforms) or endowments (soil degradation) impact on livelihood outcomes (food security). The view of assets and livelihood strategies (including non-farm strategies) is a valuable way of moving thinking about food security away from an agriculture-only focus. Many donors have adopted poverty eradication as their overarching theme. The World Development Report 2000/2001 presents a poverty-reduction strategy focusing on promoting opportunity, facilitating empowerment and enhancing security. Each of these can be seen as supporting improved livelihoods and food security. Even though the food security agenda is changing, many old issues remain important, and new challenges and opportunities are emerging:</td>
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<td>• Low soil fertility &amp; lack of water are the fundamental biophysical constraints to raising productivity.</td>
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<td>• Whilst poverty is now widely accepted as the central cause of food insecurity, food issues are fundamental to poverty analysis. This makes food policy central to poverty policy.</td>
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<td>• The number of poor in urban areas is growing, and urbanisation is increasing. Urban food-security issues include the creation of remunerative employment, efficiency of urban food-marketing systems, food safety, urban/peri-urban farming, rural–urban linkages in household food provisioning, and potentially harmful changes in diets and child care.</td>
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<td>• Livestock provide incomes and food to the world’s poorest people, yet livestock (particularly small-stock) in food security are largely neglected by research and policy alike.</td>
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<td>• Food issues associated with trade liberalisation are complex and highly contested. Almost all aspects of WTO have food-security effects.</td>
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<td>Global development experience</td>
<td>18</td>
<td>Sustainable Agriculture</td>
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<td>The parameters of sustainable agriculture have grown from an original focus on environmental aspects to include economic and broader social and political dimensions.</td>
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<td>• Ecological The core concerns of SA are to reduce negative environmental and health externalities, to enhance and utilise local ecosystem resources, and preserve biodiversity. More recent concerns include broader recognition for positive environmental externalities from agriculture (such as carbon sequestration and flood protection).</td>
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<td>• Economic perspectives on SA attempt to assign value to ecological parameters and include a longer time frame in economic analysis. They also highlight subsidies that promote the depletion of resources or unfair competition with other production systems.</td>
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<td>• Socio-political concern the equity of technological change. At the local level, SA is often linked to farmer participation, group action and promotion of local institutions, culture &amp; farming communities and attention to institutional and financial viability. SA is associated with a wide variety of technology applied in specific instances, and representing attempts to provide widely relevant strategies. Interpretations of SA feature the reduction of external inputs (e.g. low external input sustainable agriculture, LEISA, which seeks to optimise the use of locally available resources and includes attention to enhancing natural and socio-cultural resources). Others place even greater restrictions on external inputs e.g. organic farming, which prohibits any synthetic fertiliser or pesticide and focuses on nutrient recycling.</td>
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<td>• Integrated pest management (IPM) utilises ecosystem resilience &amp; biodiversity (opportunities for biological control). When pesticides are used, it substitutes threshold-based decisions for calendar applications.</td>
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<td>• Integrated nutrient management (INM) is concerned with bringing additional plant nutrients (including those from inorganic sources) to farm systems, reducing nutrient loss (through erosion control, conservation of crop residues, etc.), and increasing nutrient recycling.</td>
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<td>• Conservation tillage is aimed at preventing soil erosion and enhancing natural processes for nutrient recycling and weed control; many (but not all) of its applications involve herbicide use.</td>
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| Global development experience | 19      | Soil Fertility & Nutrient Management | 3 | 3 |    |    |    | The term ‘soil fertility’ describes the soil’s ability to supply plant nutrients and in a wider sense any soil property that influences plant growth. Nutrient management includes ways to recycle nutrients, replace lost nutrients with external inputs, and improve the inherent fertility of soils (e.g., by increasing organic matter and availability of nutrients such as phosphorus). Soil fertility and nutrient management influence agricultural productivity, and hence food security and livelihoods. Soil problems and potentials are often over-generalised at national and regional levels, while soils and their management options are location- and situation-specific. The inherent fertility of many soils is low (particularly, but not only, in Africa) because of their clay and organic matter content. The low nutrient status of soils, and the loss of organic matter (through continuous cropping, burning and overgrazing) and nutrients (erosion and leaching), are key issues. Farming systems, especially combinations of crops and livestock, also influence management options. Replacing multiple crops with monocropping may raise demand for external inputs and increase pressure on the soil. Suitable socio-economic and policy environments to maintain and improve soil fertility may be lacking. **Improving soil fertility** ‘Nutrient mining’ (extracting more nutrients than are returned) is a major factor impoverishing the soil. Massive replenishment programmes have been proposed, especially for phosphorus, but their economic benefit and long-term sustainability need case-by-case evaluation. Governments and donors have promoted agroforestry, green manures and legumes, but these succeed only in some situations. Mineral fertilisers have had greater impact, particularly when subsidised, but continuously using them alone is not sustainable. Key issues include:  
  • Soil nutrient imbalances, nutrient ‘mining’, and sustainability of nutrient-management practices.  
  • Ways to include nutrient management in livelihood and resource-management interventions.  
  • Soil fertility recapitalisation and attempts to raise awareness and coordinate approaches for this.  
  • Increasing awareness that technical interventions alone are not sufficient; they must be integrated with institutional and policy elements to improve the management of soil nutrients.  
  • The strategic choices that determine investment in soils: e.g., the trade-offs between farmers’ immediate needs (which may lead to nutrient mining) and longer-term sustainability.  
  • Ways to improve organic matter, or to make fertiliser more effective and profitable.  
  • The roles of the public and private sectors, especially in privatised, liberalised input markets.  
  • Appropriate policy responses to the withdrawal of mineral fertiliser subsidies.  
  • Methods combining local knowledge, practices and decision making with scientific approaches e.g. participatory technology development. |
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| Global development experience          | 20      | Non Farm Income in Rural Areas         | 3 | 4 |   | 3 | 3 | Rural non-farm income (RNFI) includes earned and unearned income received by rural people from the urban economy (via temporary migration, remittances, welfare, pensions, interest) and the rural non-farm economy (RNFE, which includes activities based in rural towns. Studies agree that cash and in-kind RNFI is a substantial contribution (40-45%) to total household income and including urban income, total RNFI contributions closer to 70% in some cases. In the long term, rural locations may offer some economic advantages over congested urban sites, while small-scale units may provide flexibility firms need in fluid, competitive global markets. However, attracting pro-poor, linkage rich investment into rural areas requires a policy that favours, and subsidises, participatory, decentralised development and marginal regions. In the short term, governments must accept that chronic rural underemployment breeds multi-spatial livelihood strategies, and the cycle of migration and remittances should be supported rather than hindered. Other issues relating to rural non-farm income include:  
• The rising contribution of non-farm income to rural livelihoods (particularly of the poor);  
• How far such changes affect the poor, especially in terms of poverty, vulnerability and inequality;  
• What makes non-farm growth pro-poor, and whether small or large-scale non-farm enterprise development is preferable;  
• The role of agriculture in non-farm growth, and the scale and magnitude of such linkages;  
• The potential for rural sectors to act as growth engines in their own right, and how efficiency can be improved by clustering and sub-contracting;  
• The cost & benefits of promoting a rural non-farm economy, especially in relation to decentralised patterns of national economic growth. |

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| Global development experience | 21      | Gender Mainstreaming   | 2 | 3 | 5 | 2 | All macro policy frameworks for development assistance must involve gender analysis; action to promote gender equality; and organisational capacity building and change.  

- **Gender equality is essential to poverty elimination.** Development targets can only be achieved by addressing the disproportionate burden of poverty, lack of access to education and health services, and lack of productive opportunities borne by women.  

- **Human rights are universal, premised on the equal worth and dignity of all human beings.** The Sustainable Livelihoods Framework provides a context for analysing the constraints women and men experience in the realisation of their human rights. Gender discrimination excludes women from the equal access needed to sustain livelihoods, increases their dependency and locks them into long-term poverty traps At all stages and all levels, women’s as well as men’s perspectives are to be involved in analysis and decision making.  

Gender analysis explores the norms of male and female behaviour and experience, and their implications for the different ways men and women contribute to, and benefit from, development processes. Sex-disaggregated data are essential to inform policy and project planning, and to monitor and assess the impact of commitments. Two distinct areas of information are necessary:  

(i) **gender analysis of primary stakeholder groups.** The precise information needed will depend on the level and nature of the intervention. Common areas of enquiry include the different roles of men and women; the resources they access and control; the issues they prioritise; and the ways in which new initiatives and services might affect women and men differently;  

(ii) **gender analysis of secondary stakeholder groups.** Organisational analysis should include an examination of (a) gender patterns in staffing and organisational culture and (b) the extent to which policies, staffing, and budget allocations recognise and address issues of gender equality. |
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<td>Global development experience</td>
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<td>Poverty &amp; the Environment. What the Poor Say.</td>
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<td>The environment is crucial to poor people – in terms of their health, security, earning capacity, physical surroundings, peace of mind, as well as their access to and control of environmental services and resources. Poor people are acutely aware of the effects of poor environmental health on their ability to move out of poverty. A healthy environment is a key indicator of well being. Poor environmental conditions - both in the home and the workplace - impact negatively on poor people with implications for their ability to pursue their livelihoods. Poverty and livelihood insecurity force poor men and women to work in environmentally dangerous jobs. Poor people clearly express their concern for and feeling of vulnerability in the face of environmental shocks &amp; stresses. The poor are under no illusions about how power and their lack of it both underpin well being and shape their relationship with the environment. Declining environmental conditions have significant impacts on poor people’s lives. Changes in access to environmental goods and services increase the time burdens faced in merely ensuring household survival. Women and children tend to bear the brunt. Institutional structures and processes from micro level up to macro level are important influencing factors in how poor people are able to control, manage and access environmental resources. Poor people’s marginalisation restricts their access to vital information, markets and public officials. A table summarises the characteristics of ill-being and well-being in relation to the environment.</td>
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<td>Social Capital</td>
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<td>Social capital is one of the five assets vital for sustaining people’s livelihoods (together with natural, human, physical and financial capital) but relationships are not entirely oriented towards material gain. Other benefits generated through social capital include spiritual well-being, identity and belonging, honour, social status and prestige. There are many competing views of social capital: • relations of trust, reciprocity and exchanges between individuals which facilitate co-operation; • common rules, norms and sanctions mutually agreed or handed-down within societies; • connectedness, networks and groups, including access to wider institutions. The analysis of social capital looks at the quality of various types of connectedness that affect people for better or worse as manifested in associations such as religious organisations, trade and consumer associations, resource user groups, political parties, financial services groups, social capital facilitates co-operation. People have the confidence to invest in collective activities, knowing that others will also do so. They are also less likely to engage in unfettered private actions that result in negative impacts such as resource degradation. The benefits conferred by social capital include: • risk management and social insurance (social capital, such as the ability to call down support</td>
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from kin, can act as a buffer against the effects of shocks and adverse trends);
• better management of common and shared resources, through group action;
• reduced costs of conducting business, including lowering transactions costs and increasing the
ability to exploit economies of scale;
• increased capacity to innovate (e.g. through membership of farmers’ research groups which are
well connected to research agencies) and to sustain activities beyond the life of projects;
• improved access to information and services resulting in greater empowerment of the poor); and
• greater influence over policies and legislation.
Social capital is not always used for positive purposes: social relationships, networks and trust can
act as a foundation for negative actions and exclusion (or even oppression) of particular social
groups. Similarly, a society may be well-organised, with strong institutions and embedded
reciprocal mechanisms, but be based on fear and power. Some forms of social capital may also
have adverse effects upon the sustainability of natural resources.
Group-based approaches that help build social and human capital are not alone sufficient for the
achievement of sustainable livelihoods and vibrant local economies. Policies conducive to group
activity are also necessary. Lessons learned about developing social capital include:
i) In the local associational context:
• start on a small scale and expand when results are clear;
• use existing knowledge about local institutions from the outset;
• do not predefine the unit of association (family, clan, village, hamlet etc.);
• ensure participatory approaches are more than just passive or consultative; and
• consider that local forms of association often require supra-local structures to function effectively.
ii) At a higher, or policy level:
• conduct stakeholder analyses to identify the interests, capacities and values of different groups;
• take a nested or pluralist approach to local organisations – membership of different groups at
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<td>different levels may be important; and</td>
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<td>• pay adequate attention to the political environment, including the impact of decentralisation.</td>
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<td>Global development experience</td>
<td>24</td>
<td>Rural Finance</td>
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<td>Credit schemes, when integrated into a broader financial services ‘package’, can materially improve livelihoods of the poor, but many schemes have failed. To guard against failure it is critical to understand existing financial systems and the debt-bearing capacity of local people. Provision should then be adapted accordingly.</td>
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<td>• Are people already accessing credit through the informal sector, traders or savings and credit associations? How successful have these mechanisms been? Can target beneficiaries be reached by supporting these or must new systems be introduced? This will provide initial information. Schemes must then be designed to capture further information on individual debt capacity. A number of mechanisms for doing this have already been established, including working through local agents (who are offered an incentive to share information they already have from other sources or who benefit in other ways from providing credit, in the case of traders who help finance their suppliers) and working with groups whose members provide mutual guarantees. Groups have a number of benefits: transactions costs for lenders are reduced &amp; transparency in lending decision-making is increased. However there are costs associated with group formation. There is no universal formula for provision of financial services to poorer people, though there is increasing consensus that: • As far as possible interest rates should be market-determined. • Lending agencies should be decentralised: credit should be taken to the borrowers and local staff should be empowered to take most lending decisions. • Credit and savings facilities should be provided as key components of a broader financial services infrastructure to ensure that local capital is utilised productively and will assist local people to meet different needs at different times. Lenders should not become bogged down with monitoring the exact uses to which loans are put, especially when the loans are small. It is important to establish whether borrowers can afford to repay their loans and to ensure that incentives to repay (peer pressure, repeat loans, collateral, social sanctions) are built into schemes. All financial services schemes must retain the flexibility to</td>
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| Honduras     | 25      | Drivers of Sustainable Rural Growth and Poverty Reduction In Central America: Honduras Case Study | The study objective was to understand how broad-based economic growth can be stimulated and sustained in rural Central America. It identifies “drivers” of sustainable rural growth and poverty reduction using an asset-based conceptual approach. Assets include natural, physical, financial, human, social, political, institutional, and location-specific assets. The study focuses on how households deploy their assets within the context of policies, institutions, and risks to generate a set of opportunities. Findings and recommendations include:  

- There are well-defined areas of higher economic opportunity, given their underlying agricultural potential, relatively good access to infrastructure, and high population densities  
- Poverty is widespread and deep in rural Honduras, particularly in hillside areas  
- Hillside areas should be a major target of national rural poverty reduction strategies.  
- Overlap between high poverty rates and high poverty densities in some hillside areas means that investments there should reach significant proportions of the country’s rural poor.  
- Agriculture should form an integral part of the rural growth strategy in hillside areas, but its potential is limited.  
- Agriculture alone cannot solve the rural poverty problem, but those remaining in the sector need to be more efficient, productive and competitive.  
- Move from geographically untargeted investments in single assets to a more integrated and geographically based approach of asset enhancement with proper complementarities.  
- There are well-defined areas of high economic potential, relatively good access to infrastructure, and high population densities.  
- Asset investment programs need to be adapted to the specific needs of regions and households.  
- Investments should support decentralized planning and implementation, but informed central analysis and central funding are still necessary for the poorest, most remote areas.  
- There is need for more strategic convergence in linking investment & impacts of sectoral projects backed by the World Bank and other donors in the diverse geographical regions of the country.  

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<td>Global experience</td>
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<td>Role of Infrastructure in Economic Growth and Poverty Reduction: Lessons Learned from PRSPs of 33 Countries</td>
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This OECD study reviewed and summarized poverty reduction strategy papers (PRSPs) of 33 countries in four regions. PRSPs emphasise economic growth is a necessary but not sufficient condition for poverty reduction. The critical policy challenge is how to generate pro-poor growth. As the international community is again recognising the important role that infrastructure plays in economic growth and poverty reduction, infrastructure development strategies are increasingly addressed as a crosscutting issue in PRSPs. Examples of unique pro-poor growth strategies are:

Uganda’s Poverty Action Fund is a progressive example of promoting citizen participation. A portion of the budget is freed from debt repayment and used only for programs for poverty reduction including infrastructure provision, i.e., water supply, sanitation, and the maintenance of rural roads. Budget allocation is determined through a consultation process between the government and the public. Implementation of the PAF program accompanies stringent monitoring by civil society. Local governments are the responsible authorities for the allocation of the PAF with the support of a bottom-up setting of priorities through community participation.

Yemen’s PRSP approaches overcoming the scarcity of water resources in inland rural areas by explicitly mention the necessity of internal migration in order to alleviate poverty and to address this issue, recognising the greater role of non-agricultural sectors for economic growth. The PRSP sees the need for creating new growth poles along coastal regions by intensifying tourism and trade-related infrastructures, including electricity, telecommunications and road networks, promoting the establishment of new economic activities.

Sri Lanka’s PRSP sees a greater role for urbanisation as a powerful engine to promote poverty alleviation. It encourages pro-poor urbanisation by

- Promoting industrialisation in areas of clear competitive advantage;
- Fostering new inroads in service sector industries, coupled with tourism;
- Improving urban amenities, strengthening property rights, and providing more land for low-income urban housing development;
- Promoting greater private participation in urban water supply schemes to broaden access;
- Fostering community-based development of water distribution and sanitation services in poor urban as well as rural areas; and
- Expanding local government capacity & finance to manage urban infrastructure and services.
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| Global experience| 27      | The Millennium Development Goals report 2005                                  | 5 | 5 | 5 | 3  | Reports progress against the 8 Millennium Development Goals including the eradication of extreme poverty and hunger and ensuring environmental stability. While East Asia leads the world in reducing poverty and hunger, the challenge of natural resource mismanagement and destruction of the environment continues to expand.
| Global experience| 28      | National Strategies for Sustainable Development: Challenges, Approaches and Innovations in Strategic and Coordinated Action | 3 |    |    | 4  | Case study research of 19 countries illustrated that many innovative approaches and tools for strategic and coordinated action for sustainable development have been developed and applied over the past decade in all aspects of the sustainable development strategy process, including leadership, planning, implementation, and monitoring and learning, and with respect to specific cross-cutting management aspects of co-ordination and participation. However, the key challenges, along with some of the innovative approaches and tools employed to address them, include the feedback mechanism (including monitoring, learning and adaptation) and the co-ordination with sub-national and local sustainable development action.
| Global experience| 29      | New International Policy Reduction Strategies                                 | 4 |    |    | 4  | This book looks into the new poverty reduction approach of the production of Poverty Reduction Strategy Papers (PRSPs). The new thrust of donor-creditor policies see the PRSP-based approach as offering an important opportunity for major changes from past practices, because this vehicle is not only intended to help forge new relationships between donor agencies and the governments of poor countries but also between those governments and their citizens, through the fostering of ‘participatory’ approaches to the design of anti-poverty measures. The authors pose some critical questions: Will PRSPs really embody a break with past policies which failed to bring benefits to the poor? Will governments be willing to engage in policies of redistribution in countries where large inequalities are a fundamental cause of the persistence of poverty? Can consultation genuinely engage citizens – especially poor citizens - in policy debates and in holding their governments to account for the way they use state resources? |
The study selected six rural development projects financed by the Asian Development Bank (ADB) as case studies to examine how the roles and relationships of policymakers, project providers, and beneficiaries changed by the participatory approaches. The typical forms of participatory approaches did not offer an effective solution to the conventional problems because they did not alter the principal-agent relationships among policymakers, project providers, and beneficiaries. There was evidence that the participatory approaches improved information flows and created new delivery mechanisms. However, even in the case of intensive consultations, there was no evidence that the increased participation empowered beneficiaries in resource control and decision making, nor did it give them authority to hold project providers accountable, enhance their ownership, or motivate them to take care of project facilities formally transferred to them. The old problem of poor sustainability of project benefits continued. The fundamental cause of the problem was the grant nature of projects, which were largely free to beneficiaries, whose lack of payments to providers underlay their lack of real power to control providers. In a competitive market, clients individually act as the principal to hold providers accountable, because they control payments to providers. In the projects examined, project funds were controlled by policymakers. Beneficiaries controlled few resources and therefore had little power in decision making and in controlling providers.

**Note:**

Each reference is rated from 1-5 (low to high) in relation to the following criteria utilised in the CWMP study:

A. encouraged participation in watershed planning and management cycles;  
B. targeted poor households;  
C. encouraged gender participation;  
D. monitored and evaluated poverty impact; and  
E. build institutional capacity to implement and expand best practices.

**List of Above References:**


4. Ribot, J (2002). Democratic decentralization of natural resources: institutionalizing popular participation. World resources Institute

5. Perera, L ( ) Innovations in Development Practice: Outline Case Studies from North Central Province, Shri Lanka.


Annex 2. Reports of CWMP Field Visits to LPP and Plan China Sites

1. Huanxian & Jinghuan Counties, Gansu Province.
2. BinXuan County, Shaanxi Province
3. Lingshi County, Shanxi Province
4. Plan China, Chunchua County, Shaanxi Province
1. CWMP Team Visit to LPP in HuanXian & Jinghuan Counties, Gansu Province, (Thursday 26 August – Friday 9 September 2005)

The CWMP Team flew from Beijing to Lanzhou, capital of Gansu Province midday Thursday August 26 and met with members of the Provincial PMO that afternoon. The latter included:

Mr Li: Chief of PMO and Deputy Director of BWR

Mr. Xi: First Deputy Chief of PMO

Mr. Jia: Second Deputy Chief of PMO

Mr. Zao: Director of Project Monitoring

Mr. Zhan: Engineer

Mr. Li: Chief of Project Engineering of BWR (key dams and warping dams)

Mr ?: Division Chief of Foreign Affairs (BWR).

Situationer and LP2 Process:
11 counties, 79 townships and 620 villages Gansu Province were involved in LPP. Four of these counties are now involved in the DFID project. Two of these four are in the eastern portion of the province: Huanxian County in Qinyang Prefecture was involved in both LP1 and LP2 while Jinghuan County in Pingliang Prefecture was involved only in LP2.

LP2 targeted 140 watersheds covering 442,285 km² of typical Loess Plateau with fragmented topography, complicated drainage, many gullies and vegetation coverage of only 12%. Erosion covered 99% at average rate of 7200 tons/km²/year. Annual rainfall averages about 500 mm and evaporation 1456 mm.

LP2 aimed to achieve 1,380 of erosion control and increase treatment from 26 to 57%, grain production by 37% and farmers income by 76%.

A. Discussion with Provincial PMO:
1. Experiences and Lessons:
   • Strong leadership and sound institutions guarantee successful implementation.
   • Strong local government involvement in project implementation from the outset assisted implementation via their role in publicising the project and mobilising the farmers.
   • Project implementation benefited from the WB’s introduction of new concepts and the training of experts and technicians.
   • New technical tools (particularly GIS) including at county level facilitated project targeting and implementation.
   • Clear operational guidelines established at each level of governance greatly facilitated implementation (e.g. the grazing ban, land contracting, bidding and procurement methods, financial management procedures).
   • Sound monitoring and systematic data collection and analysis assist the management of project implementation.
   • A sound balance of economic development (for poverty alleviation) and physical works (to improve soil and water conservation) supports sustainable regional development.
   • Development of rural infrastructure improved the economic condition of rural villages and this lead to an improvement in their social condition and poverty alleviation.
• Improved health care and education in LP2 villages was the result of improved integration with agencies at county level.

2. Conclusions:
• After six years of implementation LP2 achieved its targets.
• The original feasibility study was correct and plans were feasible.
• Good design and plans led to successful implementation.
• WB chose the correct investment directions.
• Poverty stricken areas have the capacity to develop.
• Some new WB management methods enabled both government and farmers to access new ideas and methods and deal effectively with both livelihood and ecological conditions to enable regional economic development.
• The introduction of WB loan to treat Loess Plateau problems provided a strategic link with international processes and the confidence needed to reform the economic structure.

3. Recommendations for LP3:
• Monitoring and evaluation is very important but very demanding. Local funding for M&E in LP2 was inadequate. Loan funds should be allocated to support this project component with impact monitoring continuing well beyond the project period.
• Contracting with individual households could be limited to terraced lands. Contracting for slope land orchards could be conducted at village level.
• Participation and awareness of farmers could be greatly improved if all farmers participated in project planning rather than just their representative.
• Long-term environmental impact indicators (e.g. changes in biodiversity and microclimate) need to be identified and their monitoring funded to continue long after the close of project implementation.
• Multi-sectoral coordination is a key issue and can be improved by members of the County PLG sharing information and other resources, particularly making use of different sectoral plans to prepare an integrated county development plan that coordinates support service delivery in support of village development.

Discussions with Huanxian County PMO:
Mr Li: Deputy Chief Qinyang Prefecture BWR
Mr Liu: Director County BWR

Qinyang Prefecture Situationer:
Qinyang Prefecture is located in the sandy middle reaches of the Yellow River and is composed of 7 counties with a total population of 2.56 million (2.1 million involved in agriculture). The prefecture covers an area of 27,000 km² of which 80% (21,000 km²) is eroded, typical heavily dissected Loess Plateau terrain with some forested hills. With average erosion rate of 6,188 tons/km²/year (up to 10,000 tons) the prefecture is one of the most severely eroded areas in the Yellow River basin and contributes an annual sediment flow of 168 million tons or about 105 of the estimated annual total. Soil erosion is the most serious obstacle to the prefecture’s sustainable development so from 1950,s have been treating erosion and have now completed about 42% (9,343 km²). However, the majority of treatment has been in the southern portion (only 30-35% treated in the north).

For the past 15 years the two LPP projects have accelerated the rate of treatment: The objectives of LP1 and LP2 were the same: integrated measures to improve the environmental condition and agricultural development for farmer’s livelihood

LP1: involved 6 counties (51 townships, 387 administrative villages, 2,274 natural villages and 510,000 beneficiaries). The project covered an area of 4,300 km² of which the great majority (3,953 km²) were eroded. Preparation extended
from early 1990 to end 1993 and implementation began 1994 after a long and high-level launch and much publicity. It ran for 8 years ending in Dec 2001. Achievements included 28,000 ha terraced, 67,000 ha reforested, 24,000 ha of grassland established as well as 92 key dams and 225 food storages as well as some livestock activities, etc. Completion rate was 103% (91% in terms of investment due to some problems with re-imbursement process on domestic side with $US 960,000 remaining)

LP2: was smaller in scope and targeted 20 subwatershed 4 counties, 28 townships, 149 administrative villages, 130,000 beneficiaries and total area of 1,755 km$^2$ (all eroded). Its preparation began April 91998 and implementation in Nov 1999. it was planned for 5 years but the MTR extended for a year (largely due to the disastrous drought of 2000 and 2001) and closed June 2005. Despite the drought all project targets were achieved after 6 years.

Lessons (or ‘realisations’):

- Supportive policies are very important: from early 1980’s changes in policy towards the ‘grass roots’ and prefecture and county shifted focus to the environment. In 1980 soil and conservation law issued. Party and government leaders visited LP sites to help with solution of problems and PMO staff spent much time in the field.
- Soil and water conservation requires long-term strategies and together with poverty alleviation have been given much more importance since “opening up” in the early 1980s.
- Since 1990 the total investment in soil and water conservation in the prefecture is about Y1 billion.
- Two counties in the prefecture are involved in DFID project (Huanxian and Huanchi). It was launched July 2004 and ends 2007. It will draw out the lessons from LPP. Activities to date have involved trainings and domestic consultants developing some monitoring indicators. Participatory models were also discussed. There has been six trainings and four study tours are planned.
- The participatory model is very important for future work. It is very important to have farmers fully aware of the project and that it will contribute to their livelihood. Agriculture industry is re-structuring with more diversified land use and local processing.
- The expertise gained under LP is a great asset and is being used on a number of ongoing programs. The LP project team are already working on domestic programs & DFID project

Example of Inter-Agency collaboration in Integrated Village Development: Huanxian county of Gansu province is a nationally designated poverty county. It covers an area of 923 km$^2$ and involves 20 townships, 248 administrative villages with a total population of 348,000.

Total agricultural land: 3.07 million mu (191,875 ha) including about 31% terraces, 19.5% fodder grasses, 13% forest land and 32.5% slope land of which about half is suitable for terracing (i.e. < 25 degree slope).

Average annual rainfall is 340 mm but very variable.

Per capita grain production is 485 kg and farmer income is Y1,245 but at least 15% of farmers (40,000), fall well below these averages.

Wilutun subwatershed covers an area of 18.5 km$^2$ (1,850 ha) and includes about 20% of the area of Baigoyuan Village which has been targeted for three domestic and international programs:

1998: Water Conservancy Ecological Program of NDRC
2002: LP2, and
2003: Poverty Alleviation Program

The PAP has now been implemented in 38 villages in this county (including 10 in 2003, 12 in 2004 and 16 in 2005) and is implemented over two years in each using Y650,000 per village allocated as a grant via the county by the provincial government.

$^{21}$ There is concern about the long-term implication for the PMO as the work has been completed but farmers and contractors have not been paid by the county)
This fund enabled the villagers to access an interest free loan for their village development plan from the Agricultural Bank of China (ABC) and the Rural Credit Cooperative (RCC) a total of Y2.8-3.- million per year to be paid back in 3 years.

Activities in the plan included drinking water, electricity, rural roads terraces, fodder grass plantations, institutional development construction of village school building and village clinic

The CPMO of LP2 collaborated by constructing 6,400 mu (400 ha) of terraces and by establishing fodder grasses.

There were four sources of funds coordinated by the county leadership, namely, from the PA Program, the World Bank, Agricultural Bank or Rural Credit Cooperative for micro-credit and farmer’s own.

2. CWMP Team Visit to LPP in BinXuan County, Shaanxi Province (Thursday 8 & Friday 9 September 2005)

The CWMP Team visited BinXian County over two days. This county is located about 2 hours drive north of the city of Xi’an. After an initial meeting over lunch with Mr Jung (County Director of the Water Conservancy Bureau), Mr Jiang (County PMO Deputy Chief) and others the team went directly to the field.

Nangou Subwatershed:
This is one of the largest sub-watersheds treated by LPP in this county. It is also relatively close to county headquarters. The watershed is 18 km long with an area of 35 km², a gradient of 1.1% and is composed of 54% gullies and 46% plateau land. The project objective here (as elsewhere) was control of soil erosion with expansion of terraces for cropping and revegetation of previously terraced side-slopes with fruit trees (mostly persimmon) and alfalfa.

Gully heads have also been protected with risers to stop runoff. Planting of side slopes and gully bottoms with black locust has been done with farmer’s labour though farmers also contributed Y60/mu towards this establishment with the balance (Y108/mu) coming from LPP. As a result all land (including sloping land, gully bottoms) has been allocated to villagers, each signing a contract with LPP allowing them to harvest 4m³ of timber/mu after 10 years.

TuoHong Village:
Inspected persimmon and alfalfa on sideslope terraces. Very little re-modelling of terraces is required. The main work is the preparation of the planting holes for the persimmon. Holes are from 0.8 to 1.0 m³, are contracted at the rate of about 10 holes/person/day, prepared a year in advance and filled with green plant material. Planting involves an 8-step regimen which includes incorporation of water-holding gels and watering once at planting with 30 litres of water (often carried up to the site). Arbour trees receive only 5 litres at planting. As a result of this careful preparation and planting the CPMO claim there has been 100% survival of persimmon rootstock. The farmers then do their own grafting (though initially grafting was contracted to professionals who trained farmers on the job). Persimmons begin to yield in the third year and yields will continue to expand for many years so that each tree has a significant income potential. In the interim alfalfa gives short term income to farmers enabling at least two cuts per year producing 1-2 tons which generates about Y300/mu.

The LPP process involves two levels of operation: the county does the design and then turns to the township and the farmers for implementation. During design the County PMO uses a photocopy of 1:10,000 topographical map to identify each compartment or block in the field. These are distinguished on the basis of land capability (mostly slope, including if previously terraced or otherwise altered). Each compartment is numbered, its area is measure and the type of treatment/land use is specified. These details are entered directly onto the topo map for each compartment including the year the work will be/has completed.

Discussions with Farmer Li:

22 It is apparent that much of this and many other portions of the Loess Plateau were extensively terraced by hand during previous times, mostly in the 1960’s ad 70’s. The current condition of these terraces varies in accordance with the initial quality of the work and subsequent land use and erosion. Condition can vary from block to block.
Mr Li heads a three-member family and has 6 mu of land composed of 5 mu of cropland and one mu of terraced slope land planted to 70-80 trees of persimmon and alfalfa. He has no livestock as has insufficient labour (his son works in town). He recognises that alfalfa helps make the soil more fertile and he sells it dried to generate Y300-500 annually.

Mr Li contracts all land preparation to local machine operators who are readily available in this or neighbouring villages.

Mr Li is part of a household group and the group leader talked to him re LPP. Township staff then told him about the contract and repayment conditions. He has a contract for only Y2,000 and though he hasn’t looked at this contract for ages (and can’t put his hand on it right now) he knows he must begin repayment this year. He says he is very happy with the project.

Mr Li and 85% of other village households are each serviced by a water tap supplied from a central reservoir. The other 15% are remote and isolated households which will be relocated to the village centre as part of the ongoing 10 year national relocation program begun in 2001. BinXuan County is one of 46 nationally designated poverty counties where schools and water supplies are established and massive resettlement undertaken. In this township, TuonHong, with population of 11,000, some 6,000 have been relocated. The township also participates in the Poverty Alleviation Integrated Village Development program but it has been implemented in only one village since 2002.

We inspected one block of 58 ha of terracing involving 102 plots developed by the project (all prepared for winter wheat). This area was previously sloping land and since terracing corn yields have doubled from 1.50 kg to 300 kg/mu. Cost of this terracing was Y600/mu. The World Bank loan proceeds covered Y430 of this cost (ca 70%).

**Wanligou Subwatershed:**

This watershed is 2.5 km2 and covers two townships and 30,000 people. LPP began in 2000 and the degree of treatment is 10% using the same model (i.e. terracing of better croplands, planting persimmon and alfalfa on existing side slope terraces and black locust on steeper side slopes and steep valley bottoms). Some medicinal herbs are also intercropped with persimmon for additional cash income in the short term. Intercropping with grain crops (e.g. corn, sorghum or millet) is not permitted under the project as these depress the growth of the fruit trees (though some crops were noted).

Inspected the key dam (100m wide, 25 metres high). Its storage capacity is 510,000 cubic metres. Built at a cost of Y1.7 million, only Y400,000 was financed by the WB. The surrounding area shows poor growth of black locust due to drought and poor soil. The water stored is used for downstream irrigation of bottomland. It is provided free of cost. After completion the operation of the key dam was turned over to the township.

**Discussions with Farmer Liu of Wani Village, Xipo Township:**

Mr Liu has a five-member family and 9.5 mu of land composed of 3 mu of cropland, 3 mu of apple orchard and 3.5 mu of sloping land planted to persimmon and alfalfa. The land was allocated on the basis of 6 members (his father was then still alive). He has three sons (and paid a penalty of Y5,000 and Y7,500 for each additional son and had to wait 6 years for his first child to receive a land allocation).

He too has no livestock due to “insufficient labour”. He harvests alfalfa three times a year, dries and sells to a buyer who comes to his house. Alfalfa generates at least Y200 per mu and requires no inputs, though prices are depressed this year (down to Y0.36/kg compared to Y0.5 last year). His eldest son works for a company, middle son works in town and youngest is still in school. He himself works away for up to 6 months/year as an expert stone mason and brick layer. He specialises in making heater beds and works all around the local area.

Mr Liu’s involvement with LPP was only 1 mu of sloping land planted to persimmon and alfalfa. He only has to pay Y105 plus interest. He has lost his contract but knows he should pay and even if he is away his family will pay to the township project office.

**Discussions with Township Chief:**
In this area average land ownership per person is 1.5 mu of terraced cropland and 0.8 mu of slope land as well as a share of black locust on steep land and in valley bottoms.

When asked about participatory village development planning as a mechanism for integrating soil and water conservation with other essential elements of village development (such as village water, primary health and schools) he does not think it is possible as village development planning “can only be done at country level because planning requires a specialised competence and expertise”. However, this township has five villages where Integrated Village Development was implemented under the Poverty Alleviation Program.

**Discussions with CPMO:**

BinXuan County is 1,183 km2 and the project “covers” 90% or 1,064 km2. In fact, all 43 subwatershed were covered during project preparation because the CPMO were informed only of the criteria and that WB required a general planning of each subwatershed that meets the criteria (i.e. soil erosion > 500 tons/km2/year and farmers income < Y600/capita/year).

As all 43 watersheds in the county met these conditions 39 people from the CPMO plus those in the various township Water Conservancy stations and other townships staff (300 people overall) worked for 18 months to prepare the project in all 43 watersheds. Only later were they informed that LPP could not cover all 1,064 km2, hence the project must be downsized by > 80% to a total coverage of only 184 km2! However, the prefecture instructed that all 43 watersheds must still be covered! Hence the CPMO implemented LPP in only a small piece of each subwatershed, effectively piloting the project in each.

Each year the county PMO received a work plan notifying the watershed, subwatershed, compartments and specific treatment activities to be completed. This annual work plan specified treatment per block and investment costs/unit of each treatment. Designated PMO staff living in the township then worked in collaboration with township officials to discuss the plans and targets with the village chief and local households and negotiated with them as to the final balance of investment between the soil and water conservation outcomes that BWR wanted and improved production (income?) outcomes that farmers wanted. The farmers and township then implement the work using strict guidelines and manuals for each activity with CPMO supervising step-by-step. Cross-checking is done by a third party before final inspection and acceptance by the County and payment of 60% of the re-imbursement amount. After further checking by prefecture and province the balance is reimbursed. The entire process takes at least 12 months. In the case of contract planting of trees by specialised teams final payment is made on the basis of survival rates at the end of year 3.

Other features of LP2 in BinXuan County include the following:

- Overall 40% of its investment has been in terraces (3,000 ha) and this is most welcome by farmers. Only a small amount is planted to apples, most is used to grow grain crops.
- The total debt of the county is Y62 million (i.e. borrowings of Y47 million + costs). This has treated 18,400 ha at an average cost of around Y3,000/ha or Y185/mu. Interest costs to farmers is subsidized as they pay only 5%.
- WB reimburse Y400,000 for key dams (considered inadequate), Y50,000 for warping dams and from Y151-807/mu for terracing, depending on slope category.
- The county has already formulated a repayment plan. Those with economic benefit will definitely have to repay but for those investments where the benefit is primarily environmental then the county is prepared to pay (expect to pay Y5 million per year).
- The Provincial PMO is now looking into LP3 but do not intend to include this county as it is too poor. Without grant funds the county does not want to be included as is difficult to collect repayments despite the benefits from terracing because grain process are low.
- However, there is ongoing commercial investment being made in terracing and every year about 13,000 mu of new terrace is completed (not including warping) by the Bureau of Territorial Resources to

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23 The repayment terms under LPP include a 5 year holiday and 15 years to repay.
improve land classes to replace land lost to villages, roads etc. This costs about Y600/mu of which 60% is subsidised (Y360/mu).

- Suggestions for LP3:
  - Intensify the treatment degree in each of the 43 subwatersheds where only 10% was covered under LP2.
  - Build more key dams and check dams to provide more water for irrigation.
  - Build more cisterns to collect rainwater as this is crucial for proper establishment of orchards and for revegetation (these were reduced from 600 to 400 in the MPR).
  - Improve monitoring in terms of environmental impact including continuing beyond the life of the project and more analysis of the borrowings of households. In this county only farmers and township sign the contract. Although the county received a record from each township of all borrowings under the project, no analysis has been made (or checking on status of repayment by individual farmers).
  - Treatment coverage criteria should replicate those of the Poverty Alleviation’s Integrated Village Development project as when development is village by village then the second village can learn from the first, and so on.
  - The Project Leading Group (PLG) provides an opportunity and mechanism for better inter-agency coordination but the County Chief must ensure that this is improved. However, in this poor county the bureaus do not receive any local finance so they are dependent on funds and plans coming down to them from the Prefecture. The latter is already paying the maintenance costs for LP2.

Comments:

1) The confusion about the scope of the project and the amount of work to be done for initial project preparation suggests there was inadequate stakeholder engagement at the outset and/or a tendency for higher levels of MWR to operate in top-down mode.

2) The fact that all 43 subcatchments have been prepared should be considered as an investment and resource that can facilitate future community-based village development in the county.

3) Under LP3 the above subcatchment soil and water conservation plans could be shared with other agencies as BWR’s contribution to a collaborative inter-agency initiative to prepare an integrated area development plan for BinXuan County that would facilitate inter-agency coordination in the delivery of services in support of integrated village development plans developed by each village community in implementing LP3.

4) Given that addressing rural poverty is one of the two primary objectives and building institutional capacity to sustain development an underlying goal, then there is little logic in excluding BinXuan County from LP3 on the basis that it is too poor to participate.

5) Logic suggests that LP3 should make full use of expertise developed by LP2 as well as the extensive physical planning and pilot areas already existing in each subwatershed.

6) LP3 would benefit from integration with other national programs that can cover the costs of developing essential social and economic infrastructure (e.g. village water supplies and access roads, respectively) and of environmental regeneration activities with benefits mostly off-farm (e.g. key and check dams) so that loan proceeds are directed mainly at improving sustainable farm productivity and farmer skills.
3. CWMP Team Visit to LPP in Lingshi County, Shanxi Province
(Monday 12 September - Wednesday 15 September 2005)

The CWMP Team flew to Tianyuan in Shanxi Province from Xi’an on Sunday afternoon and met with Mr Xu, Chief of Shanxi Provincial PMO and his Deputy (Mr. Yan) for discussions concerning the objective of our mission and the program of activities over succeeding days. As both provincial officials were to accompany us it was agreed the team would visit just Lingshi County and use the time to conduct in-depth discussions at all levels.

We drove south to Lingshi Monday morning and after an initial meeting over lunch with Mr Ho (County Chief), Mr Li (Chief of the CPMO) and Mr Liu (Deputy Chief) we discussed in detail project implementation procedures in the CPMO using project maps and other records.

**Situationer and LP2 Process:**
Lingshi County covers an area of 11,200 km². Average rainfall is about 500 mm but the range is exemplified by the following:

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<tbody>
<tr>
<td>Rainfall in mm:</td>
<td>530</td>
<td>330</td>
<td>310</td>
<td>340</td>
<td>229</td>
</tr>
</tbody>
</table>

Total population is 240,000 of which about 60,000 live in the county’s urban centre. Average crop land/capita is < 2 mu. Coal is relatively abundant and recent high prices have seen a boom in coal mining. It was reported that where a farm family have better terraces the women attend to the cropping and the men go off to work in the mines, though reportedly often only part-time.

Lingshi is in the top 29 counties in Shanxi Province in terms of most severe soil and water conservation problems. The county’s Fenghe River has 28 gullies all which needed treatment but no funding was available until LP2. The project covered all 19 subwatersheds in the county. The county has 200,000 mu of walnut including 60,000 mu established with LP2 support.

The LP2 process began with the province selecting 11 out of the 108 agricultural counties (there are another 10 urban counties in Shanxi province). Each of these were approached via letter and then 24 were selected for further discussion based on four criteria:

1. The extent of erosion based on standard formula. Any subwatersheds exceeding 5,000 tons km²/annum was rated high (the max was 24,000 tons?).
2. Poverty status (i.e. where farmers income is < Y800/capita/year. Those selected actually averaged Y546.
3. The level of enthusiasm or commitment as gauged by discussion with county officials and their evident interest.
4. The county’s commitment to repay and provide counterpart as evidenced by letters of commitment.

Under LP1 there was a policy to select counties contiguous with other project counties. Hence in Lingshi County the first halt of LP2 was focused on the 12 subwatershed east of the Fenghe River that adjoined an LP1 county further east. However, finding that progress was slow the MPR of LP2 expanded the project into all 19 subwatersheds in the county with the result that the greater poverty, enthusiasm of farmers and opportunity for terracing west of the river enabled the project to increase the rate of implementation and reach its targets.

The first step in LP2 project preparation involved the CPMO in each target county conducting land capability assessment and land use planning across the entire county. This began as a desk-study using 1:10,000 topo maps at 5m contours followed by some ground-truthing and interviews with township and village leaders.

This enabled a general and pseudo-detailed county map to be developed showing watershed and township boundaries, village centres and current and proposed land use. This map provided the basis for costing project
preparation. It is noteworthy that for preparation of LP1 only watershed boundaries were considered but it was found during implementation that administrative boundaries provided a better basis for implementation.

Following project approval and mobilisation there was equal allocation of project targets across the 11 counties and then each township. This allocation took the form of a ‘quota’ which was subsequently updated and revised during implementation based on actual outcomes.

Project implementation involved CPMO personnel visiting target townships and in partnership with township officials and staff of local ‘stations’ of various agencies (e.g. forestry, agriculture, livestock) identifying villages on the basis of similar criteria.

The depth of consultations with farmers in target villages depended on the type of project intervention planned. For terracing (which has the highest impact) the farmers in each compartment were consulted, each terrace was identified as to area and each ‘owner’ within each block. These details were captured in a booklet prepared for each village containing a sketch map of the compartment (area with the same land capability) and block (in this case a terrace) within the compartment and a table identifying each compartment, block and the area and owner of each block or portion. These details were the basis on which each farmer agreed to and was issued a contract covering the cost of the WB contribution to the development and his obligation to repay.

**Points to Note:**

- The amount of each activity allotted to Shanxi Province was divided equally amongst all 11 target counties and then across all townships in the county.
- CPMO came to each township and village with a menu of project interventions on offer without any assessment of what the villagers (and township?) considered was their most pressing issue or greatest development opportunity.
- CPMO offered a standard menu of interventions and narrow range of enterprise alternatives without consultation with line agencies or commercial stakeholders (e.g. the agri-businessmen, local banks) at county or township level.
- Beginning about 1980 the process of allocation of village land to individual farm families resulted in each family being issued a contract that provided usufruct rights over specific areas for a period of 20 years. These contracts have now expired and recently been replaced with a second round of usufruct contracts lasting 30 years.
- Contracting ‘environmental’ or ‘ecological’ land to individual households is considered unnecessary and inefficient. The CPMO suggests allocation is better done on a village community basis.
- BWR had a range of expertise at county level including foresters, agriculturalists and agricultural machinery specialists. LPP appears to have promoted this multidisciplinary approach (though it also suggests BWR may have less need to collaborate with other agencies).
- The PMO staff recognise there is a need for policy to be coordinated at macro level and point out that the grazing ban initially imposed only in project areas was much more successful after it became a national policy and was actively promoted by Forestry and local governments.
- Drought severely effected the project. Often economic and arbour tree had to be replanted more than once, carrying water uphill each time. Most arbour tree planting was contracted to specialised teams who do everything possible to ensure survival as are paid 60% of contract at end of first year and balance on survival at 3 years.

**Jiaozong Village:**

This village is home to 140 households and 560 people with about 100 working in the mine or outside the village. Many areas are planted to walnut for which the Forestry Bureau is meant to provide technical assistance. However,

24 Under China’s collective ‘ownership’ land is allocated to individual families on the basis of the number of people living in the extended household and land capability. Each family is provided a minimum amount of ‘capital land’ for cropping as well as slope and other classes of land, the amount depending on village population and the areas of various classes of land available. This allocated land cannot be sold or mortgaged.
the villagers are now looking towards the Township’s Nut and Fruit Tree Association technical expert team for technical support.

The village has 1,000 mu of terrace and 400 mu of warped land including an additional 100 mu developed by the project. However, most terraces have been remodelled by project. Terraced land in valley bottoms is much more productive that terraces up on top where soils are sometimes poor (e.g. corn yields of 500 kg/mu compared with 200 kg/mu). The team inspected various plots of walnut with soybean or prepared/sown to winter wheat.

The Village Chief owns 10 mu of terrace. All are planted to walnut with alfalfa underneath. He cuts alfalfa four times a year and considers it grows very well (except on the most infertile areas) and is good for at least 10 years. He uses the alfalfa to feed rabbits (about 300 in cages in a shelter), uses the manure on his crops and sells about 300/year at >2.5 kg live weight earning ¥10,000 (skins worth more than the meat). About 30 households in the village produce rabbits. Alfalfa grows OK on at least 40% of the land remaining after exclude warped land and high fertility land that farmers must use to grow crops. The village has a coal mine that it leases out for ¥750,000/year. About 70 villagers work in the mine. The village chief is mine manager and appears quite wealthy. He build his good house (complete with biogas) for ¥40,000 in ‘97.

Points to Note:

- Despite the relatively high population density there appears to be considerable areas of ‘vacant’ and uncultivated terraces. This seems to be the result of more farmers turning to mining for a source of livelihood
- The standard of walnut tree maintenance is very mixed.
- LP2 did not promote alfalfa under walnut, apparently because it “does not grow in these areas because the soil is poor”. However, conversations with the chief of Jiaozang village seem to indicates otherwise.
- The promotion of livestock, including their valuable role in generating organic fertiliser for nut and fruit trees and to improve poorer crop lands, merits further investigation during the preparation of LP3.
- The mining boom and strong work opportunities only began in 2002 and with rising coal prices workers can reportedly earn up to ¥300/day!
- In the past, most villages had mines but the government is trying to close down the smaller mines (i.e. those producing < 600,000 tons /year).

Jingshen Township:

Jingshen Township has 20,000 mu of horticultural crops including 13,000 of walnut. The township joined the project in 2002 and borrowed a total of ¥2 million. Only two of the township’s 16 villages did not participate in LP2 (they already had all their lands terraced and planted to walnuts, chinese dates and pears).

The township sees opportunities for further plantings but is unsure of market prospects though it is looking for opportunities for processing and value adding. Some farmers and whole villages are contracting bulldozers to terrace more land. There is no quota for resettlement in this township as there are no opportunities to resettle. LP2 provided the financial opportunity for farmers to implement what they wanted to do. Now others are following this lead. However, repayments are difficult as production is low on newly terraced land, tree crops are only just beginning to bear and most were planted on less fertile soils.

The Nut and Fruit Tree Management Association was formed on the initiative of the township in August 2003 following their investigation which found that farmers were not maintaining their plantations well during the critical early years established. The NFTMA is non-profit, farmer-based and self-managing though it is housed in the agriculture station office. Its Management Board is composed of the Forestry station chief (as consultant) and representatives from each of the 3 areas in the township and from each village. It has a total of 20 technicians who were identified as most competent and received training from experts. This training is continued during the quiet winter months. The County provides ¥3000/year and township ¥20,000/year to maintain the Association which charges ¥30/day (plus meals) to be paid by the villages for training and other supports.
Points to Note:

- The Prefecture adds 1% to the repayment costs (i.e. now 6.5%) when on-lending to county. County does not add any charge when on-lending to township or township to farmers.
- Although the Nut and Fruit Management Association is currently only providing extension there is a need for maintenance work while trees are not producing. When they begin to bear after five years the NFTMA intends to become involved in marketing.

4. CWMP Team Visit to Plan China Chunhua County, Shaanxi Province (Saturday 10 September 2005)

Meeting in Plan China County Office with Madam Wong (Project Manager since start-up in 1999), Mr. Lou Shou Twen (Community Development Facilitator) and Mr. Cho Twing Fung.

Background:
Chunhua County has 10 townships. Plan China is working in 4 of them including the main town. The County has 370 administrative villages, 676 natural villages and a population of 190,000. It receives an average rainfall of 610 mm and has 186 frost-free days. Apples are the dominant source of farmer income though the majority also have livestock. Food deficit is rare though rural poverty is common.

Plan China’s Program:
Plan China began its program in Chunhua County in 1999 with 6 staff in 48 villages. It now has 16 staff in the county and is operating in 89 villages. To date Plan has invested a total of about ¥11 million on 141 projects including the following:

1) **Capacity Building**: 44 projects in the form of trainings in livestock production, horticulture, cropping, community development planning, women’s handicrafts and gender awareness.

2) **Children’s Education and Healthcare**: Targeting those < 18 years involving 69 projects and an investment of ¥5 million in 60 schools including building a primary school in the county centre. The others are pilot programs in 18 schools involving renovating libraries, dining halls, toilets, personal hygiene training, sports facilities and equipment. Training is also provided to school management boards & teachers to improve overall learning conditions and assistance is also provided in the development of school curriculum and textbooks.

3) **Preschool Health Improvement**: Targeting children < 6 years There are 22 projects all based in villages with investment of ¥700,000 to date and involving health care, children doctors training, village clinics, training of teachers and parents and provision of some facilities such as TV, VCD, books, stationery etc. Also in this component are training of village paramedics (male and female) to work on women’s health care issues (AIDS, reproductive health) child nutrition and feeding.

4) **Building Relationship with Donor Sponsors**: as > 80% of Plan’s program is funded through sponsors from 15 donor countries there are 20 projects with investment of ¥233,000 involving organising children’s camps and training, mutual visits, activity groups.

5) **Drinking Water Supply and Environmental Sanitation**: 26 projects involving a total investment of ¥2 million in development of human and livestock water supplies, rural toilets and training of families and schools in water, environment & sanitation (WES). Plan works in close coordination with the county Agriculture Bureau on drinking water and irrigation and is currently trying to secure a grant from the Dutch government to support further investment in this major sector.
6) **Child-centred Community Development**: provides the guiding principles on which Plan’s activities are based and includes publicity and extension of lessons learned.

Program implementation is based on a Plan sub-project officer in each township with 2-3 staff provided by the township government (selected and paid by the township) and trained mostly on-the-job by Plan. At village level there is the usual Village Committee and a community-based Village Development Committee as well as a Women’s Group.

**Village Development Planning:**
The village development planning process is participatory with training of trainers conducted by experts from China Agriculture University. These trainers train Plan County staff in how to conduct Village Development Planning. They then each train 3-4 villagers.

The process begins with a village community meeting to identify community resources, cropping calendar and conduct wealth analysis (the latter done by the children). The village community is then divided into three groups, each composed of 10 women, 10 men and 10 children who then prioritise the village development activities and bring this back to the broader community to review. The VDP process also involves questioners sent to each HH in the village via children. The entire VDP process takes a maximum of two weeks. This includes 4 days orienting and training of the Village Committee in the VDP process followed by 5-10 days actually working in the village community.

**Visit to Nanliugou Village:**
Nanliugou Village is located about 5 km from the County town on high, open flat terrain of the Loess Plateau. Its land use is mixed and the village houses mostly traditional and old. Total population is 828, total area 1900 mu with 1260 of cropland (about 1.5 mu/person) and 639 mu of orchard. We met with the Village Chief in the community information room (a portion of his house) and discussed the development process in his village. We were joined by the respected leader of the Village Water Subcommittee.

The program began in 2000 but there was little action until the election of the current young and active village chief in 2002, though real investment began in 2003. The village community held an initial meeting, then divided into 3 groups and each raised issues and problems which were amalgamated, prioritised with solutions and incorporated into the village development plan. The main priorities were water, improved grain production, improved livestock production, handicrafts and technical training relating to all these areas.

The water system was a priority. For over 20 years before the project although each house had a metered supply the system was not managed or controlled, fees were not paid, illegal connections were rampant and the system was inadequate in terms of volume and reliability. Now each house must pay to install its own meter, pay ¥1.5/m³ for water used. Fees cover the stipend of the system manager as well as accumulate a fund of ¥1,200 annually to cover pumping costs and repairs and maintenance. It was noted that the previous person in charge of the water system had been nominated by the county.

Trainings have been delivered on pesticide-free cropping, horticulture, livestock and fodder, biogas and fertiliser production in support of the villager’s own “5 in 1 ecological agriculture” which builds on the synergistic opportunities they themselves recognise.

As with water supply, key persons were elected by the villagers to lead development in each priority area based on their experience and a willingness to assist others (e.g. a local key farmer was trained as village veterinarian). Similarly, the local expert in biogas is supporting its adoption in the village. Each household set-up costs ¥2,200 and utilises

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25 Apparently CAU has developed a strong participatory village development planning method suited to China.

26 The 5 linkages for 1 ‘good cropping’ : horticulture fodder grass (intercrop), fodder grass & livestock, livestock and biogas, biogas (fertiliser) and horticulture
household and pig manure (two sows are sufficient). Plan proves 50% as grant and the balance is labour by the household.

Plan China helps finance the implementation of each Village Development Plan (VDP) for a variable period depending on funds available, enthusiasm and commitment of the villagers and whether and when government agencies step in to support the community to implement their village development plan.

Lessons Learned:

- Plan initially financed 100% of household livestock purchases but found if livestock are provided free the farmers do not appreciate or care for them properly.
- Plan tried rotational financing in cash or in-kind (with initial recipient passing on offspring to cash from sale to the next farmer, but found this was too slow. This led to development of a micro-credit system for financing livestock.
- Micro-credit schemes are now being initiated for other purposes in other counties via Womens Groups
- Plan now uses local publicity via local radio and television to promote its messages re community-based village development and for training. The village chief himself does the publicity.
- VDP should include more attention to markets and invite some experienced experts to assist and advise the village community during the village planning process.
- Building the capacity of local community management groups for each sector is most important. This enables them to become local experts and assist other villages.
- The Village Development Plan is reviewed each year by all the villagers and the next annual work plan is prepared. This is a most important step and can take three days.
- One way of overcome weak or indecisive village leadership is to organise cross visits to active and successful villages.
- Plan notes that the VDP process was initially implement in isolation from government but increasingly a partnership is developing. This is largely the result of including county officials in the county-level training of trainers and then having them also involved in the village development planning process.
- Plan is now seeing those agencies which were initially less interested becoming more active as the project develops core funding. (However, they stress that when government agencies are involved they must strictly follow Plan’s international accounting procedures and participate in both the VDP training and the process).
- Plan is finding that government agencies are increasingly utilising the Village Development Plan as a valuable reference to guide their own activities.

Plan perceptions of LPP and how it might fit with the village development process:

Although Plan staff had heard of the Loess Plateau Project they were not really familiar with it. Their perception is that LPP is top-down (“very high government interference”). However, if done the right way (i.e. based on participatory village development planning and linked with local government and other agencies so there is strong local ownership) then “even a loan of up to Y5,000 per household would probably be acceptable to the farmers”.

They quoted as an example the fact that Plan is currently doing a feasibility study into the collection of waste plastic (widely used for weed control in vegetable crops) and found there is a local businessman who will provide up to Y10,000 to fund collection and reprocessing (though it should be noted that Plan is funding the balance of Y30-40,000 as a grant!)
Annex 3. Case Study Quotes: Lessons from LPP Implementation

The CWMP Team discussed with LPP project staff at all levels during the field visits to LPP project sites, with a focus on the County PMOs where technology and management were integrated. The County PMO was also the governmental office responsible for actual project implementation in the field. In all the counties visited, the Team held intensive discussion with County PMO staff, from directors to technical staff. Their various points of view and lessons learned from successful implementation of the Loess Plateau Projects are documented below as a series of quotes by County PMO officers.

Policy support:
“Erosion control and ecological construction is a long term strategic issue in China. In the early stage, the Government was concerned about this, but actions were not strong until after the economic reform. Particularly after 1980s, erosion and ecological problems received more and more attention from the Party and government. Among all the ecological issues, erosion control is also listed as the highest priority for action by local government. In Qingyang, 1 billion were invested into erosion control in last 10 years or so (including 40+18 million USD from the Bank), equal to the total investment of the 30 years before this period. The other specific measures included issues of the Law of Soil and Water Conservation. These also played an important role.” (Huanxian)

Participation of the local people:
“We mean both local people putting a stop to their destructive activities, and their participation in the project. We did achieve something in this aspect, but great achievements only occurred after the implementation of the WB project. When starting WB project, we strengthened publicity of the project to the public/local people. We say ‘farmers participated in project planning, implementation and maintenance of project achievements.’” (Huanxian)

Improved project management:
“Good institutional arrangement and management policy is important for successful implementation of the project.” (Jinchuan)

“Strong institutional/organization backup is important. The PMO must be composed of the right people. It is also important to have stable staff in the PMO”. Project management regulations set by the Qi Government as the key guidelines in project management, and PMO also set up various rules and standards for project management. Project monitoring was done regularly and also “in needs” for special project components (such as survival rate of tree plantings); strong audit as well. (Zhun Ge Er)

Technical extension:
“Appropriate identification of approaches and models are an important condition for successful implementation, and attention to technological extension and farmers' training are a must.” (Jinchuan)

Integrated approaches:
It is important to apply integrated implementation approaches for the successful project: Implementation models being tested are:

1. ecotourism model;
2. Forest resources development model;
3. Fruit product development model; and
4. Grasses & livestock development model.” (Jinchuan)

Loan repayment plan:
“The county has made a repayment mechanism/plan: For those areas of the project where a direct benefit can be generated, it will be repaid by farmers (e.g. terrace, irrigation, economic plants, livestock, etc.) while for those mainly with public benefits the loan will be paid by government. The ratio between the two is half to half. For the government share, main source will be from the fees received from coal mining (the county collects about 1.4 yuan/ton).” (Binxian)
**Post project management and technical services:**

“Even for economic plantations (mainly walnuts), farmers are not properly managing their orchards as they lack confidence as well as techniques. A further reason is the villagers get very good off-farm income from the coal mining, and therefore pay insufficient attention to their crops. County-township pay great attention to this, and organized 'Associations' to solve technical problems.

“In 2004, the township allocated a budget of 20,000, and another 3,000 from county government to support the operation of the association. Senior/professional farmers are identified as farmer technicians for which training was provided (invited experts from county/province), and the farmer technicians then provide managerial information and technical guidelines to farmers in the field. They will receive 30 Yuan/day as fee, and the meals are provided by the villages they are working with. During the winter, the farmers have not much work to do, then the township organizes training for them.” (Lishi)

The project staff were also requested to give their views on how they could do better if they will do the project again”.

**Loan repayment issue:**

“The loan repayment load is high for the farmers. Only the loan for terracing has no big problem, but all other components have a problem. It will be better to repay the loan over a longer term.” (Huanxian)

**M&E:**

“M&E is an important component, but not financed with the WB Loan, even not fully confirmed with the counterpart funds. It is suggested that we need to ensure resources to support this.” (Huanxian).
Annex 4. Lessons Learned from LP2 (1999- 2005) and Recommendations

The following is based on notes made during presentations by the various LP2 PMOs during WB Implementation Completion Report Mission Wrap-Up Meeting, Xi’an, 10 September 2005.

CPMO:
LP2 Project scope: 4 provinces, 12 prefectures, 37 counties and total area 19,800 sq km (1.98 million ha)

Experiences and Lessons:
Lessons drawn from the success of LP2 include the importance of:

- continuing the improved management systems established in LP1 such as:
  - thorough and detailed feasibility study and project preparation;
  - clear guidelines and specific regulations for management of all aspects of implementation, finance and technology;
  - bidding and contracting for all capital construction projects and procurement;
  - regular and detailed monitoring and evaluation of project outputs as the basis for re-imbursement;
  - regular and detailed supervision by PMOs at all levels to solve problems of implementation
- the effective implementation of the grazing ban by local governments;
- the application of IT systems including GIS;
- applied research to improve agriculture, forestry and livestock production;
- planning, implementing and monitoring with farmer’s participation.

Major Issues and Recommendations:

- Poor provincial and county governments in western China face difficulty in meeting interest and commitment fees (8% in total) on Loan proceeds.
- Studies leading to adoption of more appropriate polices should precede similar projects aimed at natural resource management and poverty alleviation.
- There is a need to enhance cooperation and collaboration between the LP and domestic projects. Investments of domestic projects in slope land conversion to forests and grass and in warping dam construction tend to replace similar LP investments and reduce potential benefits due to less effective implementation and lack of integration with other elements of the LP project.
- WB project funds and domestic investments should be integrated so the former are directed to production and poverty alleviation activities that directly benefit farmers (e.g. terracing, horticulture, livestock and water conservancy). Domestic investments should be directed to items with major benefit to the environment such as key dams and protection forests, but using improved management and implementation procedures.
- Project activities in soil and water conservation and poverty alleviation should be adjusted to suit the local conditions.

Shanxi:
A total of 5 prefectures and 11 counties were involved in LP2

Experiences and Lessons:
Lessons drawn from the success of LP2 include the importance of:

- integrated measures;
- re-imbursement system
• strict inspection and enforcement system
• participatory method;
• grazing ban
• mid-term re-adjustment

Major Issues and Recommendations:

• Uneven progress in different areas
• Impact of drought
• Fire prevention

**Gansu:**
11 counties involved.

**Experiences and Lessons:**

Lessons drawn from the success of LP2 include the importance of:

• good leadership;
• improved project management;
• improved production and soil and water conservation technologies;
• study tours and trainings increase capacity;
• improved implementation in LP2 due to:
  • grazing ban;
  • more careful application of technologies;
  • fodder grass and livestock development; and
  • GIS technology

**Shaanxi:**

Experiences and Lessons:

Lessons drawn from the success of LP2 include the importance of:

• integrated treatment
• technical innovation and extension of production techniques
• grazing ban
• formation of pillar industries

Major Issues and Recommendations:

• Failure to anticipate drought, hail and locusts
• Some institutional establishment, especially monitoring
• Restructured landuse and primary industry and socio-economic development has resulted in better farmer practices and increased education and health and ecological stability
### SUMMARY WORK PLAN CWMP WSM BEST PRACTICE REVIEW: PARTS A & B

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<th>DATE</th>
<th>ACTIVITY</th>
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<tr>
<td>1</td>
<td>Tuesday June 14</td>
<td>John Dalton flies Orange - Sydney - Beijing</td>
<td>Relocation</td>
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<tr>
<td>2</td>
<td>Wednesday 15</td>
<td>Team Meetings WB/DFID. Fly to Xian</td>
<td>Introductions and briefings re objectives, framework &amp; work plan</td>
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<td>3</td>
<td>Thursday 16</td>
<td>a.m. Meetings CPMO in Xian p.m. Meetings with CPMO, PMO, PAO etc</td>
<td>Introductions and explanations of project processes, discussions re participatory processes and suggested improvements for LP3.</td>
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<td>4</td>
<td>Friday 17</td>
<td>Meeting Plan International. Fly to Beijing and Hohot</td>
<td>Discussions re processes and progress with Plan’s participatory water and sanitation program in Xian</td>
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<tr>
<td>5</td>
<td>Saturday 18</td>
<td>Drive Hohot-Zhun G’er Banner. Meet Banner PMO. Inspect LPP sites in LP 1 and LP2 subcatchments</td>
<td>Brief explanation of selection and situation assessment processes and inspection of project sites LP1 &amp; 2</td>
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<tr>
<td>6</td>
<td>Sunday 19</td>
<td>Meeting with Banner PMO. Drive Zun G’er to Hohot</td>
<td>Detailed report of progress. Discussions re WS selection process, villager participation, grazing ban, suggestions LP3</td>
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<tr>
<td>7</td>
<td>Monday June 20</td>
<td>Meeting with Provincial PMO. Fly to Beijing.</td>
<td>Brief meeting with PPMO re banner selection criteria and LP 3</td>
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<tr>
<td>8</td>
<td>Tuesday June 21</td>
<td>a.m: Prepare Inception Report outline p.m: Team download &amp; planning at WB office</td>
<td>Meeting at WB to discuss work plan, MWR and other donor meetings, Inception Report outline and tasks</td>
</tr>
<tr>
<td>9</td>
<td>Wednesday 22</td>
<td>Drafting Inception Report</td>
<td>Discussions and exchange of outputs and ideas</td>
</tr>
<tr>
<td>10</td>
<td>Thursday 23</td>
<td>a.m. Meeting with MWR (9.30 am) p.m. Meeting with AusAID</td>
<td>Introduction and discussions of LPP processes and explanation of CWMP to canvass experiences and improve ownership Identify progress with participatory processes &amp; grazing ban</td>
</tr>
<tr>
<td>11</td>
<td>Friday 24</td>
<td>Drafting Inception Report with discussions. Lunch with John D Liu re materials for presentation</td>
<td>Discussions and exchange of outputs and ideas</td>
</tr>
<tr>
<td>12</td>
<td>Saturday 25</td>
<td>Drafting Inception Report (Mantang leaves for south)</td>
<td>Discussions and exchange of outputs and ideas</td>
</tr>
<tr>
<td>13</td>
<td>Sunday 26</td>
<td>Drafting Inception Report</td>
<td>Discussions and exchange of outputs and ideas</td>
</tr>
<tr>
<td>14</td>
<td>Monday 27</td>
<td>Meeting with CIDA 10.00 am</td>
<td>Progress with participatory processes, poverty alleviation, etc</td>
</tr>
<tr>
<td>Day</td>
<td>DATE</td>
<td>ACTIVITY</td>
<td>OBJECTIVE</td>
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<tr>
<td>15</td>
<td>Tuesday 28</td>
<td>Wrap-up Meeting WB and DFID 3.00 pm</td>
<td>Discussions re progress and work plan for completion of Parts A, B, C.</td>
</tr>
<tr>
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<td></td>
<td>Arrangements re Stakeholder Forum/Workshop early Sept.</td>
</tr>
<tr>
<td>16</td>
<td>Wednesday 29</td>
<td>John flies Beijing - Sydney - Orange</td>
<td>Relocation</td>
</tr>
<tr>
<td>17</td>
<td>Thursday 30</td>
<td>Drafting Inception Report</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Friday July 1</td>
<td>Drafting Inception Report and communications</td>
<td>Exchange, edit and consolidate sections of Inception Report</td>
</tr>
<tr>
<td>19</td>
<td>Saturday July 2</td>
<td>Drafting Inception Report</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Monday July 4</td>
<td>Draft Inception Report forwarded to WB for comments. Drafting continues all week</td>
<td>Exchange, edit and consolidate sections of Inception Report</td>
</tr>
<tr>
<td>24</td>
<td>Friday July 8</td>
<td>Inception Report forwarded to WB</td>
<td>Presentation of Inception Report for eventual circulation to stakeholders</td>
</tr>
</tbody>
</table>

### OUTLINE WORK PLAN CWMP BEST PRACTICE REVIEW: PART C

<table>
<thead>
<tr>
<th>Day</th>
<th>DATE</th>
<th>ACTIVITY</th>
<th>OBJECTIVE</th>
<th>ACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sunday August 28</td>
<td>John Dalton flies Orange - Sydney - Beijing</td>
<td>Relocation</td>
<td>JD</td>
</tr>
<tr>
<td>2</td>
<td>Monday August 29</td>
<td>Team Meetings WB/DFID. (p.m. Fly Beijing to Lanzhou, Gansu)</td>
<td>Briefings re developments and Work Plan. Relocation</td>
<td>Review Team</td>
</tr>
<tr>
<td>3 - 11</td>
<td>Tuesday Aug 30 to Wednesday Sept 7</td>
<td>Meeting with Gansu Provincial PMO followed by in-depth visits and discussions in two selected County PMOs, townships and villages</td>
<td>Gain detailed understanding of project processes, discussions with villagers re targeting, participation</td>
<td>Review Team</td>
</tr>
<tr>
<td>12</td>
<td>Thursday Sept 8</td>
<td>Fly from Lanzhou to Xi’an via Beijing</td>
<td>Relocation to China</td>
<td>Review Team</td>
</tr>
<tr>
<td>13</td>
<td>Friday Sept 9</td>
<td>Join ICR Mission Wrap-up Meeting in CPMO in Xi’an</td>
<td>Understand ICR findings and meet Provincial PMOs</td>
<td>Review Team</td>
</tr>
<tr>
<td>14</td>
<td>Saturday Sept 10</td>
<td>Facilitate Provincial Stakeholder Forum/Workshop in Xi’an with LPP PMOs and lower level stakeholders.</td>
<td>Discuss objectives, proposals with key provincial stakeholders to improve relevance and ownership</td>
<td>Review Team</td>
</tr>
<tr>
<td>15 - 20</td>
<td>Monday Sept 12</td>
<td>In depth visits and discussions in two selected counties, townships and villages in Shaanxi. (p.m. Saturday 17: Fly to Beijing)</td>
<td>Gain detailed understanding of project processes, discussions with villagers re targeting, participation etc</td>
<td>Review Team</td>
</tr>
<tr>
<td>Date</td>
<td>Activity</td>
<td>Details</td>
<td>Team</td>
<td></td>
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<tr>
<td>Saturday Sept 17</td>
<td>Central Stakeholders Forum/Workshop in Beijing. (p.m. Fly from Beijing to Taiyuan, Shanxi)</td>
<td>Discuss aims, discuss objectives, proposals with key central stakeholders to improve relevance, ownership</td>
<td>Review Team</td>
<td></td>
</tr>
<tr>
<td>Monday Sept 19</td>
<td>Discuss objectives, proposals with key central stakeholders to improve relevance, ownership</td>
<td>Review Team</td>
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<tr>
<td>Tuesday 20</td>
<td>Meet with Shanxi Provincial PMO. Travel to selected County</td>
<td>Relocation. Discuss objectives and proposals</td>
<td>Review Team</td>
<td></td>
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<tr>
<td>Wednesday 21 to Saturday 24</td>
<td>Meet with County PMO followed by in depth visits and discussions in selected townships and villages (p.m. Saturday 24: Fly to Beijing)</td>
<td>Gain detailed understanding of project processes, discussions with villagers re targeting, participation</td>
<td>Review Team</td>
<td></td>
</tr>
<tr>
<td>Sunday Sept 25</td>
<td>Preparing Draft Interim Report</td>
<td>Consolidate latest findings and case studies</td>
<td>Review Team</td>
<td></td>
</tr>
<tr>
<td>Monday 26</td>
<td>Preparing Draft Interim Report</td>
<td>Consolidate latest findings and case studies</td>
<td>Review Team</td>
<td></td>
</tr>
<tr>
<td>Tuesday 27</td>
<td>a.m. Presentation of Draft Interim Report to WB/DFID &amp; discussion p.m. Discussions re Yellow River Forum and October Work Plan</td>
<td>Present outputs for discussion and agree updates Decide thrust and content of presentation to Yellow River Forum, preparation tasks and Forum Work Plan</td>
<td>Review Team + WB/DFID</td>
<td></td>
</tr>
<tr>
<td>Wed September 28</td>
<td>John Dalton flies Beijing-Sydney-Orange</td>
<td>Relocation to Australia at end September</td>
<td>JD</td>
<td></td>
</tr>
<tr>
<td>Sat. October 15</td>
<td>John Dalton flies Orange-Sydney-Beijing</td>
<td>Relocation to China mid October for YR Forum</td>
<td>JD</td>
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</tr>
<tr>
<td>Sunday October 16</td>
<td>Preparing presentation for Yellow River Forum</td>
<td>Update and customize CWMP Interim Report for presentation to Yellow River Forum</td>
<td>Review Team</td>
<td></td>
</tr>
<tr>
<td>Monday Oct. 17</td>
<td>Preparing presentation for Yellow River Forum</td>
<td>Present to WB/DFID for review and comment, update and finalise presentation</td>
<td>Review Team + WB/DFID</td>
<td></td>
</tr>
<tr>
<td>Tuesday Oct. 18 to Friday October 21</td>
<td>Review Team participates and presents to Yellow River Forum</td>
<td>Present CWMP review findings re WSM &amp; poverty alleviation to YR Forum. Obtain interaction &amp; feedback</td>
<td>Review Team</td>
<td></td>
</tr>
<tr>
<td>Saturday Oct 22</td>
<td>Review Team meets to discuss feedback from Yellow River Forum and updates and tasks for preparing Final Report</td>
<td>Discuss learnings and feedback from YR Forum and updates for inclusion in Final Report. Allocate tasks</td>
<td>Review Team</td>
<td></td>
</tr>
<tr>
<td>Sunday October 23</td>
<td>John Dalton flies Beijing-Sydney</td>
<td>Relocation to Australia</td>
<td>JD</td>
<td></td>
</tr>
<tr>
<td>Monday Oct. 24 to Saturday Oct. 29</td>
<td>Review Team prepares Final synthesized report and forwards to WB Beijing (total input 2 days)</td>
<td>Synthesize all work and feedback from Yellow River forum into Final Report and forward to WB Beijing before end October</td>
<td>Review Team</td>
<td></td>
</tr>
</tbody>
</table>
Annex 6. Report of Inception Mission wrap up meeting

Report of CWMP Watershed Management Best Practice Review Team’s Inception Mission Wrap-Up Meeting with DFID/WB

Date: 28 June 2005
Location: DFID Office Beijing
Attendees: John Warburton and Sun Xue Bing (DFID)
Wendao Cao, Joanna Smith (WB)
John Dalton and Ling Shi (Consultants)

John Dalton explained that Senior Consultant Dr. Mentang Cai was not present as he had left last Saturday on another WB mission in the south. He then presented a summary of the CWMP team’s initial findings in which he outlined the village level development process and the hierarchies of governance and of watersheds (see diagrams in documents) and the importance of participatory and livelihood approaches.

Mr Dalton then pointed to the conundrum re the delivery of basic services necessary to support integrated village development in the absence of any inter-agency coordination or integrated area development planning mechanism at country level to drive it. He noted these services were vital to poverty alleviation (e.g. village water, education) and to proper landuse (e.g. technical advice, physical access to markets). He noted that while these could be supplied via a county PMO such an approach duplicated existing line agencies, was highly unlikely to be institutionalised and was likely to dissipate at the end of the project.

Subsequent discussions included the following:

- Whether the best practice participatory village development process proposed was realistic, was working anywhere in the world, and the need for documentation to justify.
- It was explained that:
  - the basic approach was common to all bottom-up rural development and is vital for:
    - enabling engagement of poor, women and farming families (the real natural resource managers of majority of lands in critical watersheds);
    - improving watershed management in lower order catchments;
    - having a lasting impact on poverty and NRM;
    - building the capability of rural communities to sustain their development; and
    - building the capacity of lower levels of government to deliver the services necessary to facilitate and support countryside development.
  - The approach is flexible and in practice is applied with local variations:
    - Can only be applied incrementally via piloting at all levels. This allows for:
      - facilitation and service delivery skills to be learnt;
      - the process to undergo refinement to suite local norms;
      - the facilitators and service providers needed to support expansion to be trained experientially;
      - top-down practices and non-participatory attitudes to change;
• institutional support for the approach to grow as results become evident;
• a supportive policy framework and ‘culture’ of inter-agency collaboration and empowerment of rural communities to begin to emerge.

• There was a need for evidence of projects where this type of process is being successfully implemented. It was agreed documentation be provided in the Report.

• The need for best practice in policy development to also be included. It was pointed out that there was another component of CWMP addressing that issue. However, it was noted that the existing Chinese govt policy and program context relating to watershed management and poverty alleviation was being reviewed. It was agreed that this would be included in the Inception Report.

• The need for the next stage of the mission to drill down and capture in detail the differences between best practice and what the LPP, other donor projects and the government programs were doing and achieving in terms of the participatory village development process and how it was serviced and supported.

• It was noted that this would require identification of counties involved in LPP (or ones nearby) which also had other donor and/or government projects that could be reviewed while in the area.

• It was agreed that the CWMP Coordinator and Senior National Consultant would identify suitable locations and make the necessary arrangements well in advance of the next mission in September.

• It was also noted that some mention of the techniques and methodologies to be used in the next mission’s field work should be included in the Inception Report.