

**The Western China Agro-ecological Village
Development Project**

**Report on Participatory Rural Appraisal (PRA) in
Dingxi and Zhunger,
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Prepared by:
Johanna Pennarz (Kunming)
Liu Xiaoying (Beijing)
Zong Huilai (Beijing)

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Annexes

“PRA is a (...) family of approaches and methods to enable local people to share, enhance and analyse their knowledge of life and conditions, and to plan, act, monitor and evaluate” (S. 102)

“The essence of PRA is changes and reversals – of role, behaviour, relationship and learning.” (S. 103)

Robert Chambers: *Whose Reality Counts: Putting the first last*. London 1997.

1 Introduction

1.1 Background of this PRA

The Western China Agro-Ecological Village Development Project now is in its first year of implementation. A “survey” on the agro-ecological situation has been carried out for Dingxi in 2002. After that, Roger Samson has conducted a fact-finding mission together with Henry Lu in both project villages. Based on the data collected on these two occasions, REAP has drafted a work plan in September 2002 that outlines the preliminary project plan and approach, subject to change as conditions require. Expectations cited in the survey document mostly refer to technical innovations which would help to increase land productivity in an extremely fragile environment. The holistic approach of agro-ecological village development on the other hand addresses the various dimensions of farmers’ livelihoods. The complex relations between environments, livelihoods and land-use systems and their implications for project implementation have not been discussed before. The PRA was the first opportunity to explore and analyse these relations. The participatory approach supports local peoples’ analysis and provides the base for sustainable action and change.

1.2 Objectives for this PRA

The PRA aims to involve this project’s different stakeholder groups in the joint analysis of the local situation and the discussion of the project plan. It deals with the diverse perceptions on agro-ecological realities and expectations on how these situations should be improved. In order to enable open and thorough discussions, the PRA creates platforms and occasions where different groups could meet and exchange. Participatory discussions and analysis are done both on the households and on the village level.

The objectives for this PRA are as follows:

- Analyse the agro-ecological problem areas (on the village level) and their implications for farmers’ livelihoods
- Identify key areas where improvements should be done and develop assumptions on the impact these improvements would have on target groups
- Discuss how these changes should be monitored
- Based on the PRA findings, review and further elaborate project objectives, results and indicators according to the local situations
- Develop recommendations for further project activities (training, survey, farm improvement planning)

1.3 The PRA process

The PRA took place between 4 November and 15 November 2002. In Dingxi, the PRA was divided into a half-day preparatory meeting with village leaders, a two-day household visits and a three-day community workshop. It concentrated on Fengjiacha administrative village in Fuxing watershed. The PRA team consisted of Johanna Pennarz (team leader), Liu Xiaoying (PRA-expert), Zong Huilai (workshop facilitator) and Claudia Ho Lem (REAP). After an initial assessment, the PRA in Zhunger was delayed to a later stage (see 4.5).

2 PRA with farmer households in Dingxi

2.1 Approach

For household visits, the team divided into two groups who independently conducted a 2-day household interviews and group discussion in different hamlets of the watershed. The PRA-team tried to involve various groups in the exercises in order to cover the spectrum of socio-economic differentiation within the village as much as possible:

- People in the upper and lower parts of the watershed
- Man and woman
- Rich and poor
- Healthy and disabled people
- Group leaders and ordinary people
- Old and young people
- Relative higher educated and lower educated people.

The following participatory PRA tools were used:

- Semi-structured interview of key informants, interest groups, individuals and households
- Resource and social mapping
- Venn diagramming
- Seasonal calendar
- Historical timeline
- Matrix ranking
- Gender analysis tools
- Poverty analysis tools
- Problem tree analysis
- Flow charts
- Time allocation studies
- Field walks.

2.2 Livelihood systems

2.2.1 Basic situation

Natural hazards, like drought, hail, insects and pests have constrained the development of agriculture in Fengjiacha. This watershed has a very fragile eco-system. Agriculture depends on seasonal rainfalls only; there are no irrigation facilities and the ground water cannot be used for irrigation. Water harvesting is quite limited with only 2-3 water cellars with 30-40 cubic meters each in each household which is sufficient for domestic water only. Population pressure and growing demands for staple crops have aggravated the ecological deterioration in the watershed. Reclamation of steep slopes for crop production and overgrazing has resulted in serious soil erosion and loss of vegetation cover.

The PRA-Team used the “timeline”-exercise to understand changes which have happened in the village during the past decades.

Historical timeline of Fengjiacha village:

Before 1980	After 1980	After 1995	After 1999
Insufficient food	<ul style="list-style-type: none"> ● Sufficient food, ● Lack of drinking water ● Electricity available in 1989 	Sufficient drinking water through construction of water cellars funded by the government	<ul style="list-style-type: none"> ● Building more than 1000 <i>mu</i> of bench terraces with government support ● Building road, bench terrace and planting trees and grasses by national land conversion program
Small road	Wide road		
High population growth rate	Low growth rate of population but long life of people(no rapid increase of population due to strict family planning policy)		
Large mountainous area covered by wild grass and shrubs	Small mountainous area		
Small area of farmland	Large area of farmland		
Small area of terrace fields	Large area of terrace fields		
Low yield of farmland	High yield of agricultural land		
Sparse distributed trees	No changes of tree density in recent 30 years		
A lot of grass	Few grass		
People live in cave	People live in house		
People consume a little vegetables	People consume many types of vegetables		
A small number of bikes and trolley trucks	Large number of bikes and trolley trucks		
Less education level of farmers	A little bit higher education level of farmers		

From the above historical timeline, we also see that farmers have received considerable financial support from the government, including funding for water cellars, construction of terraces, plantation of trees and grasses and infrastructure construction etc. This has also raised farmers' dependence on government assistance.

On the average, each household has 1 to 3 water harvesting tanks at the vicinity of household. The tank is mainly used to harvest surface runoff water as drinking water for livestock and people. The water is also for daily use, like cooking, washing and laundry. Farmers said that the water quality is poor because of its bitter taste. Water harvesting is not sufficient for irrigation. The underground water and water in the main valley can not be used for irrigation to farmland, because it contains high concentration of saline and alkali.

The main tools used for farm activities are manual agricultural tools. Only one household owns a trolley-truck. The main transportation depends on bicycle.

Because the settlements are scattered throughout the watershed, information exchange among farmers and between technical people with farmers is weak. Farmers lack of market information and other technical information.

2.2.2 Resources and Land Use Systems

The PRA-team has explored current land use systems and causes of environmental stress through various tools. Resource maps have worked out a basic understanding on how farmers use their land and what their considerations are.

The maximum size of farmland owned by household is 25 *mu* and minimum size is only 7 *mu* (including land for land conversion program). The average per capita farmland is 4.8 *mu* and 625 kg grain per capita. The main crops are wheat, potato, peas, lentils, millet, and buckwheat. Farmers have to sell grain to the state according to their contractual quotas contracts; for most households, the remaining grain is sufficient self-consumption. Still, there are many households who do not produce sufficient grain for self-consumption and have to buy grain for household consumption from the market. With most households pursuing non-agricultural wage work, grain scarcity usually can be compensated through cash income.

The limited crop varieties are integrated into a well-adapted land use system which tries to cope with an extremely risky natural environment. The major risks affecting agricultural production are lack of rainfall and soil erosion. Farmers try to maintain soil fertility while minimising losses of fertiliser due to erosion. They use both organic manure and chemical fertiliser. Most farmers have observed that the soil fertility increases or decreases with cropping practices and they are very much aware that soil fertility is lowest on newly build terraces. Still, only those farmers who own plenty of livestock are able to improve their soils in the long-term, while poor farmers have to apply chemical fertiliser which is washed out easily during heavy rains. Crop residues are not used as manure but as animal feed.

Crop rotation is an important tool for maintaining soil fertility. The common crop-cycle is: beans-wheat-potatoes. Potatoes are the most important cash crops in the project area. Potatoes are appreciated for their drought resistance, but they require relatively high inputs of fertiliser. In years with limited rainfall during spring seasons, farmers grow more potatoes instead of grain drops. But, potato production is labour intensive. Households, who have only limited family labour available due to sickness, migration or age, therefore tend to decrease their potato production:

The most important factors determining land use are the spatial location of land plots and the family labour available. Farmers apply organic manure only on those plots located in convenient distance to their house (where the stables are located as well). Crops requiring high inputs of organic fertiliser are therefore planted on the nearest plots only. Natural soil fertility is not a significant criterion for farmers' decision-making. Farmers consider those plots to be "of good quality" which are comparatively flat (therefore not so much exposed to soil erosion which washes away the precious fertiliser) and covered with a thick layer of soil. "Good land" is also characterized by a favourable micro-climatic location which keeps it warm and moist. Exposure to the hot sun (like on the northern slopes) is an important factor limiting land quality within the valley.

Sloped land on the other hand is difficult to cultivate and much more exposed to serious soil erosion. Still, many farmers depend on cultivating food crops on sloped land. Under the land conversion program, some farmers have converted several *mu* of steep cropland into grassland mixed with Caragena and Sea Buckthorn. The main grass is alfalfa usually used for fodder of livestock. Other fodder materials include crop residues like wheat and maize straw.

Grass resources is (and always has been) an important part of local farming systems. Farmers know numerous local varieties and use them for different purposes.

Species	Fodder for sheep	Fodder for pig	For cattle	Rapid growth	For donkey	Medicine	Control erosion	Drought resistance
Alfalfa	●	●	●		●			
Oat grass	●		●	●	●			
Sorghum grass	●		●	●	●			
Agropyron gaertn				●			●	●
Luotuoben grass				●			●	●
Caohuzi grass							●	●
Licorice						●		
Xihuyezi grass							●	
Daosheng grass							●	●
Caraway							●	
Niuyanhua grass							●	
Kuqucai	●	●	●		●			
Guzili	●	●	●		●			

The land conversion program is considered to make a significant contribution to an improved environment. It supports the extension of big arbour trees and shrubs in the watershed. But, big arbour trees and high densities of shrubs (Caragena) might lead to lower underground water levels. The land conversion program also has aggravated interest conflicts over land use. Farmers do not agree that good quality land in the vicinity of household needs to be converted into forestland. From resource maps and interviews it became clear that a large area of cropland was converted into forestland. For instance, in Wang Qin family, 8 of 20 mu cropland was converted into forestland, in Hejingqiao's family, 5 of 7mu cropland was converted into forestland. This conversion process seriously undermines farmers' present livelihoods and makes the need for alternative income even more urgent.

2.2.3 Household incomes

Through the analysis of household cash flows, farmers' financial constraints became evident.

Input-Output Analysis (Cash Flows) Zhang Zeyue with 8 family members:	Input-Output Analysis (Cash Flows) Wu Qinying family with 5 family members:
<p>▶ Inflow of cash resources:</p> <ol style="list-style-type: none"> Cash income from 2 family members working in the factory: 4000 Yuan <p>▶ Outflow of cash resources</p> <ol style="list-style-type: none"> Purchasing medicine and hospital treatment: 200 Yuan Purchasing vegetables: 400 Yuan Purchasing coal: 260 Yuan Agricultural tax: 130 Yuan 	<p>▶ Inflow of cash resources</p> <ol style="list-style-type: none"> Cash resource from working in the town: 2000 Yuan <p>▶ Outflow of cash resource:</p> <ol style="list-style-type: none"> Purchasing medicine: 200 Yuan Purchasing chemical fertilizer: 100 Yuan Electricity fee: 50 Yuan Purchasing clothes: 200 Yuan Loan payment for building house: 600 Yuan

5. Purchasing flour: 600 Yuan	6. Purchasing wheat flour:500 Yuan
6. Purchasing pesticide: 100 Yuan	7. Purchasing vegetables: 200 Yuan
7. Purchasing chemical fertilizer: 500 Yuan	8. Purchasing salts, source and vinegar: 60 Yuan
8. Education fee for child: 250 Yuan	9. Agricultural tax:100 Yuan
9. Purchasing gasoline for truck: 1000 Yuan	10. School fees for child: 200 Yuan.
10.Road tax for trolley truck: 320 Yuan	
11.Payments for electricity: 150 Yuan	
12.Purchasing clothes: 200 Yuan	
13.Unpaid debt: 6000 Yuan	
14.Salts vegetable oil: 150 Yuan	
Subtotal: 4360 +6000 Yuan debt	Subtotal: 2210 Yuan

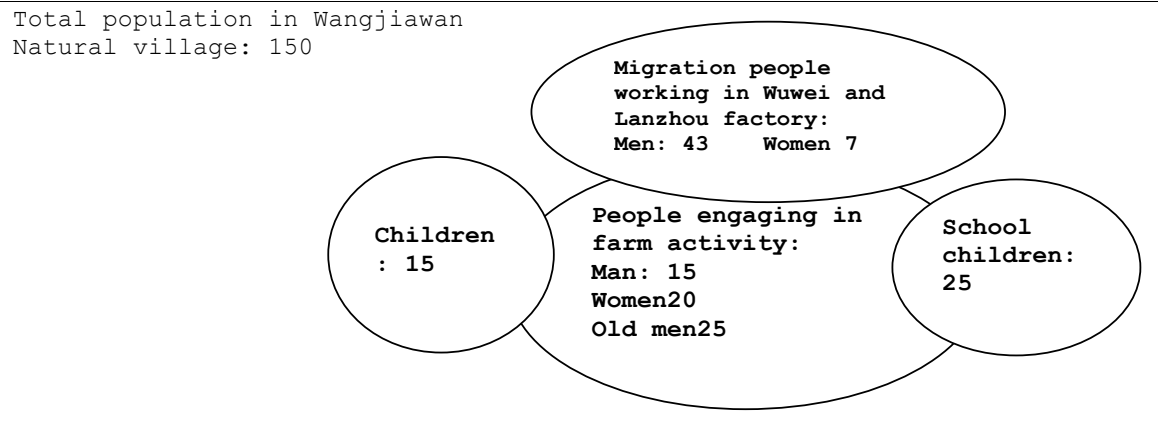
From the flowcharts, we can conclude that the main cash income of household is from off-farm activities. Other sources include incomes from selling surplus potato (1 *mu* of potato can earn about 400-500 Yuan gross income in the price of 0.26 Yuan/kg), and from selling lentils and peas. Farmers' income from sheep, goat and chicken is becoming less and less because of limited fodder available after the grazing ban. The major source of cash income is off-farm work.

Farmers have to pay for agricultural inputs (chemical fertilizers, pesticides), for daily expenses as education fee, electricity charge and purchasing vegetables, medicine, coals, agricultural tax and sometimes wheat flours. Farmers normally use crop residues and coal for household cooking and heating. Purchase of coal requires cash income from off-farm activity. In the downstream, many farmers have purchased sun energy stove for cooking with subsidy from government. The main foods are wheat, buckwheat, potato, lentils, peas, millet. Farmers usually eat cabbage, snake melon, carrot, chilly, eggplant, onion, chives, tomatoes etc. Some households plant few vegetable in their kitchen gardens, but without irrigation most of them have to buy the vegetables from the market.

Farmers usually buy new dress and shoes in spring festival. Most woman farmers can knit sweaters and sew clothes for family members. Farmers do not go to bank to deposit money because they rarely have extra money for bank saving. Many farmers have debts because of expenses of building new houses or purchasing heavy tools like trolley-truck.

2.2.4 Migration

Income from non-agricultural wage labour is important for purchasing agricultural inputs and compensating losses and risks in agriculture. The PRA-team has done a mobility analysis.



Based on the mobility map and other data obtained through interviewing, we find out that around 1/3 farmers work outside the village (in the brick making factory and Lanzhou city). It is mostly men who are doing off-farm work. Old farmers, women and children stay in the village for agriculture and for caring children and old people. Many farmers depend on migration work as main source of income generation. Non-agricultural employment is the main strategy for compensation risks in agricultural production.

Farmers have cited environmental factors as most important risks for their livelihoods. They have observed that yearly rainfalls have been decreasing, that drought have become more frequent and sand storms more severe.

2.3 Gender issues

Women do most agricultural labour; still, their decision-making is limited. They have lower educational levels and they hardly leave their village. Marketing and wage labour belong to the male domain. From the seasonal calendar, the gender division of labour becomes visible.

Seasonal calendar and gender analysis

Months of Lunar
year

	Activities	Who does what?			1	2	3	4	5	6	7	8	9	10	11	12
		Men	Women	Both												
1	Spring broadcast			✓	—											
2	Weeding		✓				—	—								
3	Harvesting	✓	✓					—	—							
4	Ploughing	✓	✓					—	—							
5	Fall harvesting	✓	✓						—	—						
6	Plough & top application of chemical fertilizer			✓							—	—				
7	Threshing			✓							—	—	—			
8	Transport organic fertilizer			✓								—	—	—		
9	Constructing terrace			✓	—									—		
10	Housework, feeding livestock and poultry		✓													
11	Look after old people and young children		✓													
12	Washing clothes and cooking		✓													
13	Prepare festival goods			✓												

From the above seasonal calendar, we understand that women play a very important role in agricultural activities. Women are doing 2/3 agricultural activities with support from men and old family members and school children. However, men make most of the decisions. During the interview, women said that they always follow the instructions from their husband on farming activities because their husbands have more knowledge and received higher education than women. From the calendar, we also know that farmers have a very tight schedule in farming activities except the periods from mid February to March and from November to December. Even during these periods, they often have to participate in the government projects on construction of terrace fields.

The seasonal calendar drawn by Niu Xiaoxia (female) clearly illustrates yearly peaks of labour and stress due to climatic factors. Together with her husband she plants wheat and beans after spring festival. Then, her husband leaves the village for wage labour and does not come back until autumn. So, most of the agricultural work is done by herself. In summer season, when most of the agricultural work is concentrated (cropping, weeding) farmers suffer from burning sunshine and easily get sick. As most of the rainfalls occur during summer months, this is also the season when most pests occur. After harvest in autumn, women concentrate on domestic works. Snowfalls in winter are essential since they determine what kind of crops can be planted in spring.

2.4 Institutional landscape

The institutional landscape within the project area has been explored through Venn diagrams. Venn diagrams drawn by different households also show that the relative importance of institutions varies with the economic and social position of the individual farmers. Better-off farmers find it easier to approach government structures and projects for support. Poor farmers on the other hand depend more on private relations and business partners.

Venn diagram: By Jiang Chenggui

Most important:

- Relatives and friends (introducing work opportunities)
- Individual business men (purchasing chemical fertilizers from them)
- Township market (for selling potatoes and baby pigs)
- Borrow money from relatives
- Village committee
- Township seeds station
- Assistance from neighbours

Important:

- Natural village group
- Exchange seeds within village
- Village veterinarian

Less important:

- Credit c-operative
- Potato association
- Village meeting
- Pesticide station
- Purchasing baby pigs within village

Venn diagram: By Zhang Xiong

Most important:

- Soil and water conservation project

Important and close:

- Village committee
- Social relations
- Villagers team (neighbourhood)
- Township government
- Seed company

Important, but less close:

- Credit co-operative
- Marketing cooperative
- Potato company

Less important:

- Extension service
- Private seed exchange
- Veterinarian service
- Clinic

Venn diagram: By Wang Qin

Most important :

- Village committee
- Township government
- Chankou brick making factory
- Free market

Important :

- Township hospital
- School

Less important :

- Electricity supply agency

Unimportant:

- Post office

The Venn diagrams show that the village committee, township government and outside factory the farmer works in are the most important relations. The farmers never go to the bank for deposit and are not able to access bank loans. Most farmers also do not know how to access government technical services. Meanwhile, the technical extension institutions are very weak in communicating with farmers in their villages. Farmers purchase agricultural inputs from private businessmen in the market. Several farmers complained that the pesticides purchased from the market have not been effective.

2.5 Poverty issues

The PRA-team has explored poverty issues on two levels: village and household. The most important factors determining poverty on the village level are: quality of agricultural land and access to communication. Team No 8 is the wealthiest neighbourhood within the village

because of its favourite location (in the centre, with school and village administration) and better access to communication. Team No 1 is the poorest neighbourhood because of its remote and isolated location. It is nested in a narrow side valley of the watershed, surrounded by steep slopes. The agricultural land of this community is seriously affected by draughts and soil erosion. Only a small proportion of the land has been terraced and a big share of it is supposed to be converted into grassland and forests under the new government project.

Together with the PRA-team, Zhang Fayuan has conducted an analysis of poverty within team No 1. Although most of the team members are poor, some households are considered to be very poor. Reasons for extreme poverty are:

- Weak labour force because of old age or poor health
- Low agricultural production due to drought
- No livestock
- Men without a wife
- Unable to do wage work outside the village
- Lack of social experience (cheated by others before)

Zhang Fayuan's own family is very poor. The poverty analysis revealed that lack of sufficient labour is the major factor leading into the vicious circle of poverty. Zhang Fayuan has to care for two disable family members. Because of the heavy work load his own health condition is deteriorating. Limitation of his labour force makes it impossible for him to raise livestock. Furthermore, it constraints his efforts on growing cash crops. Zhang Fayuan prefers potatoes to other cash crops because they can better cope with the dry soil conditions in the valley. But, without sufficient labour, it takes him longer than other farmers to harvest the potatoes in autumn, thus selling them at a time when prices in the market are already going down. Unlike his neighbours, Zhang Fayuan also does not participate in mutual labour exchange arrangement since he could not contribute to it. Therefore, he cannot mobilise additional labour during the harvest. Another factor limiting his returns from cash crop production is the lack of marketing options and information which leaves him without any alternative to low potato prices.

The PRA-team has also visited Ding Zhizhong who is one of the two old bachelors living in extreme poverty within team No 1. Without a wife, he lacks the labour needed for keeping livestock. He has given over his land to his brother and neighbour after it has been terraced, because he did not have sufficient fertiliser for cultivating the infertile new soils. His remaining sloped land meanwhile has been turned into grassland under the new government project. Without any crop land left, he totally depends on state grain subsidies.

He Jing Qiao tells another story of her family's poverty. She is 35 years with 4 family members. Her husband works in the Wuwei brick factory.

She says that her family is poor because of the following reasons:

1. Her household's owns only 7.5 *mu* of farmland, but officially it is registered as 13 *mu*
2. They used to rent land nearby but since the new government program the owners won't allow renting any more. Most of her land has been allocated under the land conversion program and she will only have 2 *mu* left afterwards
3. Her husband bought a new house and just finished paying back the loan
4. One small donkey that is too small to plough, no chicken, no sheep
5. 6. Unstable cash income from work in outside (sometime her husband is cheated)

3 PRA workshop in Dingxi

3.1 Structure of the Workshop

Based on the findings from household visits, the PRA-team worked out a concept for the community workshop. The PRA took five days, two days for interviews with farmers and three days for the PRA workshop. The PRA-team had adjusted the workshop methodology and contents to the participants' interests and level of knowledge. We had to add some supplementary input, and shorten the time due to a number of reasons:

- Most of farmers have little knowledge about the project before, in particular the concept of agro-ecological system;
- Most of youth or well educated man are being employed outside and not able to join the meeting, while the rest at home are low educated and aged mostly
- The workshop could not be started until 11 am in each morning because farmers usually finish their breakfast at about ten to ten-thirty in this season and took half and one hour to access to the meeting place;

The project area includes 325 farmer households in four villages located in the watershed, of which, Fengjiacha is the central village in which 100% farmer households would benefit from this project. In the village there are nine village communities situated on up land and valley of the watershed. Considering the space available for the workshop, 40-50 participants are recommended for the workshop. However, the real situation was that within the three days, the number of farmer participants reached 100 on average, much over what was expected.

Participants have been invited according to the following criteria:

1. Farmer households from each village groups (communities)
2. Members of village committee
3. Heads of each village groups
4. Organizers/farmer trainers identified

In addition, the village meeting should represent the diversity of groups in the project areas, such as:

1. Women (not less than 40% within the whole participants)
2. Not only couples, but also women representing the household
3. Participants both from rich and poor families
4. Both young and aged labours (including the elderly as rich in experience)
5. Both educated and less educated
6. Those working at home permanently and those employed outside seasonally
7. Total number of participant should be around 40-50 farmers

The community workshop concentrated on the core project area, i.e. the administrative village of Fengjiacha because of the following reasons:

- 1). Considering the logistics and location, the village committee could mobilize farmers to come to the meeting;
- 2). Farmers could easily engage into discussions with their neighbours. Issues identified would be the base for the village work plan later;
- 3). The administrative village coincides with the watershed where farmers share common issues and interest

The objectives for the participatory workshop were to identify and analyse agro-ecological issues existing in the watershed and to develop options for improvement. Furthermore, the workshop provided an opportunity to introduce participatory methods for analysis and discussion, thus supporting the capacity building process within the community.

Group discussion and visualized presentations at the plenary were the two major tools to encourage farmers' internal communication process. The role of the experts was to facilitate the discussions.

The workshop was held from 7-9th November 2002 at the location of the village committee of Fengjiacha.

3.2 Workshop Process

Day one: The local agro-ecological system and main problem areas

The workshop started with an introduction into the idea of the ecological system through a visualized presentation showing the transformation from the present (poor) natural environment to a future (more ideal) ecological village. This presentation also introduced the project, its objective and components.

After that, the basic ideas of participation have been introduced, besides some ideas on the PRA process, objectives and methods. Then, all participants also were invited to take a look at the drawings displayed on the wall around the courtyard, which were made by the farmers interviewed during the previous two days. The works raised farmers' interest in learning and excited all the participants.

The major task of this day was to let farmer think about:

- What does the ecological agricultural system mean in the context of their watershed?
- What are the main ecological problems existing in the project area?

The process was structured into two steps. First, farmer were divided into groups and asked to draw a resource map of their watershed. For an open and more equal discussion in which each participant would have a chance to express his views, five groups were formed: one group consisting of the village committee and local leaders, two groups for male farmers and two groups for female farmers. Farmers were really enjoying the discussion on the major ecological issues which they could relate to their own situation.

Then, farmers were asked to identify major issues related to what has been jointly worked out as main components of the ecosystem: soil, water, climate, animals, people and natural plants. After each group had presented the findings for the watershed described, the workshop closed for the first day.

During the presentations, most farmers also mentioned problems of communication and infrastructure. These issues have not been further discussed as they are outside the present project scope.

Day two: *How to solve the problems identified*

The objective of the second day was to identify possible solutions for the major ecological problems.

In order to refresh and deepen the understanding of ecological linkages, a chart showing an ideal ecological system was introduced to farmers at the beginning of the day. Then, the workshop returned to the problems presented the day before. At this point farmers were able to allocate the identified issues to the main aspects of the ecosystem (soil, water, climate, natural plants, animals and people) in the plenary. In order to allow illiterate participants to follow the discussion, the PRA-team had prepared posters representing the different aspects and main issues for discussion.

The classification of problems identified by the farmers on the pervious day should clearly that most of them are related to soil, people and natural resource. Based on their findings, the experts from the PRA team have also added some issues for discussion in the work groups.

Ecological problems identified by the workshop participants

Soil:

- Lack of or less organic matter
- Dry
- Lack of fertilizer
- Lack of water
- Little knowledge about the structure of soil
- Little knowledge about the relationship between water and organic matter
- No knowledge the concept of organic matter
- Low quality of terrace land made by machinery
- Little knowledge on composting methods
- Water and soil erosion
- Salinisation in the deep valley

Climate:

- Bad, dry and less precipitation

Animals:

- Too many rats
- Too few predators (owl) for controlling rat populations
- Few birds

Crops:

- Lack of machinery
- Severe damage by rats
- Plant diseases and insect pests
- Few of varieties

People:

- Lack of qualified human resources
- Lack of technology, in particular the applied technology
- Bad information exchange among farmers
- Lack of understanding on the concept of ecological system and the importance of improving environment
- Little understanding of the relationship among water, environment and agriculture
- No sufficient labours left home for the development of environment improvement
- Lack of knowledge for environment protection so too much use of poison for rats
- Intensive labour input by women but no power for decision making
- Independent and weak in self-help

Natural plants:

- Lack of water for crop cultivation
- Lack of water for reforestation
- Insufficient vegetation cover
- Few varieties of trees extended
- Damages by animals

Farmers divided into discussion groups according to the main topics. The following tasks have been set for the group work:

- Select the five most important problems from each topic
- Analyse the reasons causing the problems
- Propose possible solutions for the problems

Participants were free to join discussions on main issues according to the interests. They concentrated on issues of soils, water and people. Most women have been interested in water issues.

Basically farmers were able to explore the reasons behind the issues and then to work out the solutions. Here we take the soil group as an example and see what they found:

Problems	Reasons	Solutions
Salinization	Dry, lack of water and over use of chemical fertilizer	Reduce the use of chemical fertilizer Irrigate efficiently Cover with sands
Poor composting techniques	Less understand and lack of technology of compounding	Build pool for mixed manure and sealed
Hardened and impervious soils	Less understand of the impact on over use of chemical fertilizer	Reasonably use of fertilizer according to the nature of soil
Lack of organic matter in soil	No knowledge of organic farming	Carry out soil trial Increase the use of manure
Depleted soils	Less understand of the relations between the water and organic matter	Irrigate rationally

Day three: ***Possible impacts of this project***

The main task of the third day was to discuss the possible impacts of this project.

At the beginning of next morning's session, the solutions have been presented in a reformulated and restructured version according to the project framework:

- changing farmers' awareness and attitudes (through training and on-farm research)
- transforming agricultural practices
- developing institutional capacities

On-farm research:

- Investigate/seek for special varieties of drought-resistant grasses
- Explore methods by which soil organic matter is increased
- Develop a sustainable way of animal raising
- Investigate a solution to reduce women's burden on farming
- Investigate the possibility of developing drought-resistant vegetables
- Investigate the situation of salinization

Training:

- Basic knowledge about the development of ecological system
- Methods of increasing organic matters in soil
- Soil analysis and management
- Reducing the risk due the use of chemical fertilizer

Field trials and new agricultural practices:

- Utilization of composts
- Introduce (new and local) varieties of grass
- Planting trees and shrubs as windshields
- Soil analysis and experiment
- Developing more efficient methods of composting

- Increasing the bio-diversity (crops, trees, grass and animals)
- Creating an environment for predatory animals

Institutional capacity building:

- To establish the channel for linkage to the market
- To organize farmers in the exchange of information and technology

As a general objective for these changes it was formulated:

“Farmer’s have improved their knowledge and awareness on agro-ecological system and apply agro-ecological methods.”

In the afternoon, participants returned to the work groups they have formed on the first day. Based on their original sketches of the watershed, the task was to discuss: “What changes will happen if all farmers have improved their ecological knowledge and awareness and apply agro-ecological methods?”

The participants engaged in very productive and lively group discussions, showing that they enjoyed the process, and they concentrated on describing the possible changes and improvements in their environment. They identified the following impacts:

Impacts visualized by women group:

- Luxuriant vegetation—many fruit trees such as pear, plum and apricot tree
- A great number of birds in varieties—like owl, woodpecker and sparrow etc.
- Increased wild animals—wild rabbit, wolf and fox
- Frequent exchange of information
- More livestock—pig, sheep, cattle, donkey, mule, chicken and rabbit
- Improved agricultural skills and knowledge,—leaning more appropriate technologies
- Soil quality improved—with higher yielding and rich varieties of crops

Impacts presented by other groups:

- More grassland and trees by recovering vegetation
- Better soil through increased use of organic fertilizers
- Higher productivity of agriculture
- More wild animals like owl and more cats
- Less damage by rats
- No use of poison for rats
- Sufficient water for drinking and for animals
- Farmer’s income increased
- Water and soil erosion controlled

In a parallel session, schoolchildren have drawn their perceptions of an “ecological village” which were then presented to the plenary. By the end of the workshop, more than 150 participants were gathered in the courtyard. With the process of increasing participation and group dynamics, the workshop eventually turned into an event for the entire community.

3.3 Observations and findings

For most farmers, the three days workshop was the first opportunity to learn about the agro-ecological system and understand some linkages within their own environment. Through the analysis, farmers could refer broader issues and aspects to the concrete situation in their

own watershed. This first step will have to be followed by more detailed discussions during the upcoming trainings.

Most farmer participants have never thought of the issues they raised and discussed before although they are facing them every day and year. Through methods of visualisation and group discussions, they learned to systematize issues and conduct their own analysis. During this opportunity, they showed great interest in the environmental issues raised. During the process, they identified appropriate levels of action. They have realized that they could do nothing about the dry climate and lack of rainfall, but they would be able to increase the vegetation by planting grasses and trees with newly introduced applied technology and increase the use of organic manure instead of the chemical fertilizer to improve soil quality, which would contribute to higher crop yields and control of soil erosion.

Solutions farmers discussed are mainly focused on the basic approaches, which can be summarized in the three aspects: Learning, technology development and capacity building. Training will be the most important means for learning. Field trials can be regarded as a part of the technical training, in another word, training cannot be held only in the classrooms. The improvement of soil quality, introduction of new variety of crops, trees and grasses etc. are the basic activities that farmers are interested. Generally, all the solutions suggested would be able to be combined into the project approaches.

The active participation in the workshop has shown that farmers were really excited to join the discussion. During the three days, it was observed that group dynamics developed and more and more participants were actively involved in the discussions. Furthermore, it became obvious that within some of the groups participants developed their facilitation and presentation skills.

Through the group discussion and presentation with visualized methods, farmers had the opportunity and were able to look at their village and their condition as a whole, to touch their difficulties in details and learn a lot. Through the process, participants have discovered that they can actively analyse problems and develop solutions.

During the process, participants became more confident and lost their initial shyness. Especially women, who have been too embarrassed to speak in front of the meeting in the beginning, raised their voices and became more active in presenting their findings and views.

Women participants contributed a lot to the success of this workshop. Firstly, the number of female participants was much over the 40% among all farmer participants; secondly they shown great interest in learning and group activities such as exchanging from each other, drawing resource map and identifying issues together; thirdly, the female representatives could make a good presentation on behalf of the women group after the encourage given by the women participants; fourthly, their findings were different to and even more accurate than those found by the male farmers.

4 Findings and Recommendation for Project Planning and Implementation

4.1 Project Approach and Process

The PRA provided a first opportunity for an open and equal communication between the project and the entire village community. On this occasion, communication turned into a both-ways process. During the workshop, local leaders and farmers learned about the project's framework and basic concepts. On the other hand, the PRA-team learned from the local knowledge on agro-ecological systems and contexts.

The project design needs to fully embrace the complexity of local realities. The PRA revealed some of the diverse factors shaping farmers' decision-making and farming practices, but it does not provide a comprehensive analysis of all the aspects and complex linkages within local ecosystems (and it never meant to). Analysis will be an ongoing process of learning and doing and has to be owned by farmers and local technicians. Options for improvements still need to be further developed together with the analysis. The PRA provided a joint communication platform for the project and the local community through which farmers have been invited to join in the process (and, from the workshop we could see, that they did so).

The present project design needs to consider the specific situations and needs within the project areas. Agro-ecological conditions show significant differences in Dingxi and Zhunger:

	Dingxi	Zhunger
<i>Structure of watersheds and Location of farms</i>	one major watershed with a dispersed settlements in it	a couple of small watersheds with farming plots, settlements on higher locations
<i>Settlement structure</i>	community consist of several hamlets	dispersed farms and settlements
<i>Major environmental problems and stress affecting farming systems</i>	lack of water, serious soil erosion	limited of water, inferior soil qualities
<i>Natural resources available</i>	limited grassland, low biodiversity	plenty of grassland, higher biodiversity
<i>Farming systems</i>	limited agricultural crops, one crop cycle, few livestock	more agricultural crops, several crop cycles, more livestock
<i>Government projects and policies</i>	major soil conservation program under implementation; "turning land into forests" program under implementation in parts of the community	"turning land into forests" program under implementation; sea buckhorn project under implementation
<i>Processes of migration</i>	temporary migration common in project area	permanent out-migration fostered by the government

Differences of conditions and problems in the two project area definitely require different approaches in both communities. For Dingxi, the project should help farmers to enhance biodiversity and improve the performance of agricultural system through environmental

sound cultivation systems. For Zhunger, the project should support the transformation of farming systems (especially the mix of livestock and cultivation) in a way that farmers gain additional income while improving the protection of the existing resource base (grasslands and new forest land). Conditions for implementing the project also vary in both areas: In Dingxi, the framework is set by the government implemented project on soil conservation which provides both potentials and constraints for the Sino-Canadian project. In Zhunger, the project is linked to the national programme implemented by the Sea Buckthorn-Centre. Community capacities also differ in both areas: Capacities are certainly stronger in Dingxi than in Zhunger local communities are dispersed and weakened by permanent out-migration and internal conflicts on access to resources.

Developing a localised approach means to hand over responsibilities for analysis, planning, implementation and monitoring to local partners, namely the village communities, while the Canadian side supports process facilitation and networking of information. The project should concentrate on enhancing farmers' capacities for analysing their own environment and developing sustainable farming solutions locally. At the present stage, the project team should concentrate on working with farmers to develop their own solutions to problems, encourage the development of efficient communication links between the project beneficiaries and resource networks and on strengthening project ownership within the communities. All project stakeholders need to have a common understanding on what they are going to do and how, and the process of communication and agreement on priorities takes time and mutual learning. Participatory processes require professional facilitation and support, and the project should build local capacity by investing in local management and technical assistance. .

4.2 Project Objectives

The overall objective is very much in line with the present government programme of "turning land into forests". In addition, it includes the aspect of "poverty alleviation". The project objective is very broad and will have to be adjusted to a realistic dimension through formulation of appropriate indicators.

This project provides a training and capacity component within the present government programme, with the objective of mitigating the adverse environmental and economic impacts arising from restricted access to resources (grasslands and reforested land). The project supports the transformation of farming systems in such a way that marginal slopes are turned into extensive uses and intensive farming is increasingly concentrated on better soils and terraced land. Farmers have to compensate for income losses through increasing land productivity on their remaining plots and developing sustainable resources on the reforested or grassland (orchards, livestock). The project should work towards clarifying to what extent and how the participation of the poor can be supported, like through the design of specific activities and quota which need to be monitored throughout the implementation process.

The project purpose is to increase the economic well-being of marginal farmers, especially women, while at the same time protecting a fragile resource base. This seems fairly ambitious within the limited time frame of this project. Project management should be aware that even if the project is implemented successfully and an alternative farming approach has been established, these impacts will only become visible on a much longer term and will probably need to be matched by processes of out-migration.

The project purpose should clearly describe what one expects to achieve within the project lifetime (like: developing a pilot approach for ecological farming). During the workshop, the following formulation has been developed: *"Farmer's have improved their knowledge and awareness on agro-ecological system and apply agro-ecological methods (within pilot areas)."*

For this pilot project there needs to be a clearer understanding of the project area and target group be (Who is going to convert to ecological farming?) and to mark the possible impact of this project (Who is going to benefit and how?). Otherwise, the impacts of this project get diluted within the government programme.

The project purpose states women as the main target group. This is justified since women do most of the agricultural labour in both communities. However, the project needs to continually improve its --- gender approach implemented within the different components and activities. No separate women components should be designed, but women need to be actively involved and supported within all project components. The project needs to monitor the continuous participation of women in project activities.

4.3 Indicators and PM&E System

Indicators need to be specified and a participatory M&E system developed as the project design advances, and participants and activities have been specified for both communities. Indicators should describe the ecological, social and economic dimensions of the anticipated changes and include the realities of all project stakeholders (researchers, governments, technicians, farmers, men and women). Some indicators have been proposed in the logframe; other indicators have been developed by the community during the workshop. Indicators need to be further discussed, developed and agreed by project stakeholders. The following framework could support the communication process.

Planning level	Types of changes	Anticipated changes
Changes under this project (project purpose level)	Changes of attitudes and knowledge	<ul style="list-style-type: none"> • Farmers (men and women) and local governments understand linkages in local agro-ecological systems and act accordingly (e.g. in order to prevent soil erosion or salinisation) • Farmers have better information on markets and new (organic) technologies
	Changes of farming practices	<ul style="list-style-type: none"> • Farmers (men and women) adopt ecological farming methods • (part of) farmers convert to organic agriculture • Farmers have developed methods for increasing soil fertility (e.g. composting) • Farmers plant more diverse crops, grass, shrubs and trees • Farmers conduct field trials on organic farming methods
	Institutional development	<ul style="list-style-type: none"> • Farmers maintain effective information exchange on ecological farming (e.g. through discussion groups, farmer association) • Women maintain regular discussion groups
Long term impacts (overall goal level)	Ecological changes	<ul style="list-style-type: none"> • Biodiversity increased (e.g. number of bird species, predatory animals) • Vegetation cover improved through grass and

		shrubs • Soil erosion decreases
	Economic changes	• Income from (organic) farming improves for pilot households (compared to their conventional neighbours) • Duration of wage labour shortens in organic farming households
	Social changes	• Women have access to and control over income from organic farming • Work loads of women do not increase

Additional indicators would be developed as the project proceeds. Indicators could be both quantitative and qualitative, describing changes which can be observed within the project lifetime.

In a next step, the indicators would need to be made more specific in terms of location, numbers and time. E.g.: XXX farmers (XX% men and XX% women) in XXX adopt ecological farming practices by XXX.

Then, it must be agreed how these indicators are supposed to be monitored and by whom. Indicators can be monitored through surveys, institutionalized village meetings, household records or project reports. The monitoring should include all different stakeholders, including farmers. All monitoring reports and documents should be reviewed and analysed by the project management.

The following is a format for an M&E-worksheet:

Indicator	How to monitor? (Means of verification)	By whom?	When? (Work schedule)				Deadline (report/document submitted)	Responsible person
			I	II	III	IV		

Since there are no experiences with participatory M&E methods, a specific activity should be planned for developing a community based approach. A session for developing and institutionalizing the PM&E should be conducted after the farm improvement plans have been finalised.

4.4 Follow-Up Activities

4.4.1 Capacity Building

Capacity building should be understood as an ongoing process in this project and a cross-cutting issue in all components. Main aspects of the capacity building process are:

- Increasing farmers' capacity to analyse their local environment and apply ecological principles to their farming methods.
- Institutionalize approaches of mutual learning, support and information exchange within the community
- Institutionalize approaches to network information and experiences outside the community

Farmer trainers have been identified during the PRA workshop in Dingxi. Their roles and responsibilities within this project still need to be clarified. Training and backstopping of farmer trainers should not only include technical aspects, but also methodological issues, like their communication role and behaviour within the community and how they share their knowledge and experiences with other farmers. Women trainers would need additional support. It is recommended that they form a core group which regular exchanges experiences and renders mutual support. Farmer trainers should also take over an important role in monitoring local processes. The project should encourage an approach that incorporates expert knowledge in a participatory manner and on how to institutionalize farmers' exchange of experiences.

The project needs to incorporate capacity building aspects in all major activities, like training, planning and experimenting. Participation during workshops is an important prerequisite and handing over responsibilities for action planning, implementation and monitoring is another one. The project management team should at all times be aware of its own performance in order to avoid any behaviour and attitudes that might prevent farmers from taking over an active and responsible role in the project.

4.4.2 Training

Training is an important part of the capacity building process. Participatory training methods strengthen people's analysis, provide opportunities for practicing social skills (communication, group sharing etc.), enhance people's confidence in their own skills and abilities and support the development of sustainable follow-up actions, shortly: they are an efficient means of empowering local people.

For an effective and localized approach to training, the Canadian curriculum should be adapted to local conditions and to people's perceptions of their local realities. The problem analysis done during the PRA might serve as a starting point for developing a project-specific curriculum on agro-ecological farming. At this point, it is stressed that the training should start from the problem areas identified with the community. The development of feasible and sustainable solutions should be part of the training process that includes both farmers and local experts. And, each training session should finally lead to concrete actions, like field trials or agreements on information exchange. While technical expertise might be locally available, the project still needs to mobilize external support for the development of training methods and concepts until local trainers have been qualified.

The project still needs to decide on the number of farmers it can support as trainers under this project, as there has been some interest in increasing the number of initial trainers from 4 to 8 in each community. For maintaining a high-profile impact of this project, it is recommended that no training should be held without action. This means, only those farmers who will participate in follow-up activities (farm improvement, on-farm trials) should be considered for participation in training courses.

4.4.3 Farm Improvement Planning

Farm improvement planning is an important tool for integrating agro-ecological knowledge and objectives into a concrete plan of action on the farm level. The project must identify the level of planning most appropriate for the local communities. Any approach departing from consolidated land pieces should be avoided due to the disconnected nature of the rural farms. Plans should be done on the level of individual households and participation should be voluntary. The project should make clear in the beginning, that conversion to ecological farming requires changes of attitudes and practices, not big investments. The planning process might follow a similar approach to the PRA-workshop, starting with the analysis of problem areas on individual farms and identifying areas for improvement, finally determining

concrete actions. It is strongly recommended that the planning process is facilitated by an experienced moderator.

4.4.4 Socio-Economic Survey

The project plans to conduct a socio-economic baseline study early next year. The survey format must be appropriate for the situations in Dingxi and Zhunger. The project should first question itself what the purpose of this survey is. If it is considered as a baseline survey for monitoring purposes, it should be clarified what aspects of people's livelihoods need to be monitored under this project. These should be also part of the indicator system. The survey probably would refer to basic quantitative economic and social indicators (composition of income, labour inputs, marketing activities etc., purchase of agricultural inputs and consumer goods) which describe changes in project sample households over the project time and/or in comparison with other non-project neighbours. If the project finds it necessary to employ survey methods for monitoring certain changes (in addition to participatory M&E methods), it is recommended that the survey is commissioned to an experienced local institution (like the Social Academy of Sciences).

5 Summary of the PRA workshop held in Sujjata village, Zhunger

5.1 Process

Before the workshop, One-day field visit was arranged so as to have observation as the supplementary to what it has been done during the previous visits conducted in October. The locations visited were two newly identified targeted communities, which are being effected by the program of returning the cultivated land into forest and grassland at very different extent. More information about how farmer would be effected and what the importance of agriculture is at present and in the zed within the framework as the same to that in Dingxi.

The reasons why it was not conducted in one group are: firstly, there is no space available for more participants at same time; secondly, people live far from each other and it is hard to get them to discuss something existing in other communities that they are not very familiar with in terms of natural, economic and social situations.

Two days concentration seems acceptable, it would not much affect farmer intensive daily house works, however, analysis of the impact on the prospective ecological system could not be done due to the limited time.

Even the workshop was arranged accordingly, there were still troubles in collecting these farmers to take part in the workshop on time, particularly it was found less participations of women representatives in the early two days. The workshop could not start until 11:00 and even much later usually, and it had to close not later than 16:30 each day.

At the beginning of the workshop, the maps and drawings done before together with the new ones were introduced and displayed to the participants for better understanding of the current situation as the base for developing ecological agricultural system. Later, the three similar relevant topics were discussed and analyzed by farmer participants: major factors negatively affecting the development of local ecological system; reasons for the factors and measures to improve the situation.

Due to lack of the knowledge of ecological system and the contribution to be given by the project, an introduction to above issues was made in order to let farmer access to the understanding of the major components and the linkage between each other in building up an ecological system.

The discussion started from drawing the natural resource maps of the communities. Based on that, farmers were initiated to identify some issues limiting to the rehabilitation of an ecological system according to the understanding how it should be like.

As the same to what happened in Dingxi, at beginning farmers were more concerning what they thought more important to improve their living conditions such as activities enabling them to generate income directly. Later, they much more realized the fundamental elements that seriously make difficulties in leaving them out of poverty.

5.2 Outputs

From the ecological point of view, the participants identified some key issues related to each other in improving the local natural environment:

- shortage of water either from precipitation or underground;
- dried weather and sandstorm happening in particular in the spring and autumn seasons;
- less vegetation in the area that can not be well developed and maintained;
- shortage of farming land and mostly lower productivity;
- poor situation of livings in diversity;
- severe erosion of soil and water;

When discussing above issues, the behind reasons were also analyzed accordingly. For instance, the reduction of vegetation was caused by both human and climate factors, like over grazing and less effort in rehabilitating, variety improvement and maintaining of grasses and tress, drought climate and soil and water erosion etc..

Talking about the soil quality and productivity, all the farmers agreed that drought weather and sandstorm, less farming measure used for water and soil management are the major reasons for poor soil, in addition, lack of technologies of fertilizer application and inappropriate crop rotation system etc. are also the aspects limiting to improve the field harvest. Insufficient manure source is another limitation to the increase of organic matter in soil.

All issues has been concluded to the linkage to human beings, such as less knowledge of ecological system and environmental protection, lack of technologies of farming management, animal raising, reforestation, and soil and water control, and weak capacity building of information exchange and cooperation and so on.

As a specific technology, sheep in house raising must be introduced and improved in this region, it is not only a question related to if governmental program of returning the cultivated land into forest and grassland successful but also a realistic opportunity whether farmers could earn in cash. It is a common case in the region and its importance is much more than that in Dingxi. In that context, farmers have to change their habit of sheep grazing into the in house raising; they need to build up sheep houses, introduce new varieties available for raising in house, feed processing and feeding management.

The followings are the summary of the activities expected to conduct with the assistance of the project in the next years in the form of training and field trial:

- basic knowledge of and information on ecological system improvement
- crop rotation system and inter cropping practice
- methods of water and soil conservation both on the field and in the whole community
- methods of planting green manure
- methods of composting

- soil testing
- soil improvement of grasses
- how to increase organic matter in the soil
- introduction of improved varieties of drought-assistant trees and grasses
- in house sheep raising technology
- information exchange in group

5.3 Findings

The specific situations in Zhunger mainly in comparison with that in Dingxi:

1. The beneficiary group was not clearly identified;
2. Most of the beneficiaries have less knowing about the project, and have no any preparation in mind for taking part in project activities;
3. Most farmers have stronger resentment for the returning cultivated land into forest and grassland, it is really causing the reduction of the land for food and the opportunity for animal production (sheep/goat);
4. Nearly each farmer household has the tradition of raising goat/sheep, which was the major source for cash income. However they are being forced into the transition process that is bringing more difficulties to them:
 - reducing the goat/sheep in a large number in order to suit the change in house raising;
 - introducing varieties appropriated in the change;
 - learning new know-how and
 - putting more labor for feed procession and animal feeding.
5. Farmers live in much more scattered area and is more difficult for them to get together (seems stronger in independence) to jointly conduct some activity in the form of groups.
6. For the project, it would be hard to work out the indicators and to verify them during project implementation, in particular from the goal, purpose, and output levels. The objective of this project is to help farmer to make effort towards the establishment of an ecological village, but the concrete components seem not be clearly identified and could be strongly contributing to the process. Additionally, the development of animal husbandry should be emphasised in the project, although farmer's interest could be incorporated into the project strategy and activity to some extent but it would increase the difficulty and effort in achieving the objective of the project.
7. Less interest and weaker capacity of the village committee in participating in project activity (it is seen presently in the preparation for the start of the project and it might be the same in the following process if there is no improvement fundamentally);
8. The coordination among the persons and institutions is not clear and efficient enough. Firstly, the responsibilities between the person from Beijing and that one from local water resource bureau is interlocked and confused. Secondly, the communication between the local bureau and the village committee is not well developed; at least the village committee was not in an active manner of cooperation.

5.4 Recommendations

It is recommended that a workshop on project management and coordination should be organized on which issues related to the project management so far should be discussed among REAP representatives, local partner Beijing, officials at the project county, and functions of the targeted village committees. As the result of the workshops, responsibilities at each level should be well clarified and emphasized in the form of writing documents.

It is proposed to finalize the beneficiaries in the communities, it be fixed during the project implementation period if there is not any specific reasons for adjustment.

At each targeted village, the workshop on annual work plan is also recommended to make it soon (before next spring season). More detailed annual work plan should be carefully worked out based on the draft one already made and the findings given by the PRA practices including major outputs and concrete activities to be gained within a reasonable schedule, indicators for monitoring, budget related and person responsible. The participants for the workshop include more representatives from the beneficiary communities.

If possible, the measures worked out in the PRA workshop should be jointly discussed and ordered in priority among farmer trainers, local technicians, and officials, which would be good for drawing out the annual work plan.

It is suggested that the field trials should be mainly conducted by these farmer trainers or by farmer groups in the form of PTD (participatory technology development), in the process it is necessary to involve local experienced technicians to give a help, by which farmers would increase confidence and experience that enable them to demonstrate and train others.

It is also suggested that the project should pay a specific attention to the capacity building of the communities in organization such as cooperative or association, democratic development and capacity in serving farmers in the field of information provision and technology transfer.

Training on in-house sheep raising should be attached specific importance, which could be regarded as a way to solve one of the key problems facing farmers, through which farmers might increase their trust on the project and would be willing to concentrate interest to the project for longer.

5.5 Specific approach considerable to the specific situation?

In order to make the project more feasible e.g. the significant contribution could be really made to the improvement of ecological agricultural system, a modification in project objective and activity is worth considerable somehow. It be on how to help farmer to pass through the transition process in a sustainable way under the background of the policy for the returning cultivated land into forest and grassland. The strategies of REAP and local government are the same (focusing on improving the ecological situation), but government cannot well manage to solve the concrete problems to farmers in the program. It is a good chance for REAP to come in and contribute to some innovation in the fields of farming practices (increasing productive in the remained land) and in-house sheep raising (a reasonable scale of raising, good variety and appropriate technology). If this is acceptable, the communication and cooperation with local bureau in charge the program could be considered.

Another consideration is that the project may start from one community. The focus should be put on pilot farmer households in farming practice and technical trials related to soil improvement, soil and water control, drought-assistant variety introduction and goat/sheep raising, and community capacity building and so on. From our observation, it seems not easy to start from a so-called watershed in a large region particularly in this place.

Annexes:

Annex 1: Structure of the Workshop (Time and Activities Schedule)

Annex 2: PRA Tools Used

Annex 3: Households Visited by Group 1

Annex 4: Problem Tree Done with a Group of Farmers