Rainwater Cellars introduced through government support (China)

**DESCRIPTION**

Government takes the lead and propelled by project, the rainwater collection for irrigation technology scales up by demonstration.

Dingxi County of Gansu Province is short of water resource. There is an old saying it's hard to exchange a cup of water for a cup of oil in Anding of Dingxi. During drought years, drinking water became a crisis and people had to walk dozens of miles to get water. With no self-relief capacity the local people live a hard life. To resolve water shortage, the most realistic method is to tap into the potential of local precipitation. Under the support of the Gansu provincial government, researches on rainwater collection were conducted during the period from 1988 to 1992 and water cellar technology was proven technically and economically feasible with its functions in preventing erosion, developing arid cropland and ecosystem recovery.

In 1994, the government disseminated water cellar technology in the northwestern part of the county covering 14 townships and 4376 households. After completion, the drinking water supply problem was mitigated for 22,000 people and 8700 animals. In 1995, a severe drought hit Gansu and the provincial government immediately initiated a 1-2-1 Rainwater Collection Project, under which the government supplied cement and the local people provided sand/stone and labor to build water cellars. According to this project each household should build one water catchment with an area of 100m² made by concrete cement and two water cellars and one backyard cashcrop forest. By the end of 2000, a total of 57800 households were involved in the project to provide drinking water to 60,900 people and 333,900 heads of livestock. In addition, dryland farming has seen great development. Since 1996, water cellar technology has been diversified and evolved. The water collection fields have extended from roof and courtyard to road surface, ditch, hillside, land brink, etc and the application has been widened to scale livestock farming, spot watering and conservation irrigation of farmland based on the achievement of the 1-2-1 rainwater collection project. Moreover, water cellar technology has been gradually combined with greenhouse production, tourism agriculture, etc to form a development model integrating rainwater conservation irrigation, dryland farming and improved livelihood standards.

**LOCATION**

- Location: Anding, Gansu, China
- Geo-reference of selected sites: n.a.
- Initiation date: n.a.
- Year of termination: n.a.
- Type of Approach: traditional/indigenous, recent local initiative/innovative, project/programme based
**APPROACH AIMS AND ENABLING ENVIRONMENT**

**Main aims / objectives of the approach**
Aims are to: establish a extension mechanism that promotes sustainable development and involves farmers participation; improve the farmers' knowledge about rainwater utilization; strengthen farmer participation and their confidence in overcoming difficulties; solve drinking water problem; eliminate poverty

The SLM Approach addressed the following problems: lack of effective grass-roots organization; backward economy and lack funds; farmers in lack of the knowledge of water cellar establishment and management; short of drinking water for human and domestic animals

**Conditions enabling the implementation of the Technology/ ies applied under the Approach**

- **Availability/ access to financial resources and services**: Found shortage: Farmers cannot afford water cellar construction Treatment through the SLM Approach: The dissemination approaches include trial operation, demonstration, training, household visit for publicity, media (TV), technical handouts and posters. The key organizer of the extension is the water resources bureau of Anding District.

- **Other**: Knowledge/technology shortage: Short of knowledge of rainwater high efficiency utilization and related agricultural technology Treatment through the SLM Approach: Demonstration and training

**PARTICIPATION AND ROLES OF STAKEHOLDERS INVOLVED**

**Stakeholders involved in the Approach and their roles**

<table>
<thead>
<tr>
<th>What stakeholders / implementing bodies were involved in the Approach?</th>
<th>Specify stakeholders</th>
<th>Describe roles of stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>local land users/ local communities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLM specialists/ agricultural advisers national government (planners, decision-makers)</td>
<td>SWC experts</td>
<td></td>
</tr>
</tbody>
</table>

**Involvement of local land users/ local communities in the different phases of the Approach**

<table>
<thead>
<tr>
<th>initiation/ motivation</th>
<th>none</th>
<th>passive</th>
<th>support</th>
<th>interactive</th>
<th>self-mobilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>planning</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>implementation</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>monitoring/ evaluation</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>✓</td>
<td></td>
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</tr>
</tbody>
</table>

Meetings, household visits
Participate in the survey and site location arrangement
Labor input for technological implementation
Observation, collaboration with the survey of the technicians
Participate in the surveys

**Flow chart**
Decision-making on the selection of SLM Technology

Decisions were taken by
- land users alone (self-initiative)
- mainly land users, supported by SLM specialists
- all relevant actors, as part of a participatory approach
- mainly SLM specialists, following consultation with land users
- SLM specialists alone
- politicians/leaders

✓ Land users and decision makers

Decisions were made based on
- evaluation of well-documented SLM knowledge (evidence-based decision-making)
- research findings
- personal experience and opinions (undocumented)

TECHNICAL SUPPORT, CAPACITY BUILDING, AND KNOWLEDGE MANAGEMENT

The following activities or services have been part of the approach
- ✓ Capacity building/ training
- Advisory service
- ✓ Institution strengthening (organizational development)
- Monitoring and evaluation
- ✓ Research

Capacity building/ training

Training was provided to the following stakeholders
- ✓ land users
- field staff/ advisers

Form of training
- on-the-job
- farmer-to-farmer
- demonstration areas
- public meetings
- courses
- publicity brochures

Subjects covered
- water celler building and management, irrigation etc.

Institution strengthening

Institutions have been strengthened / established
- no
- yes, a little
- ✓ yes, moderately
- yes, greatly

at the following level
- ✓ local
- regional
- national

Further details
- the technology application strengthened the capacity building of the local water resources departments. Application of the technology helped other projects related to water conservancy and poverty reduction.

Research

Research treated the following topics
- ✓ sociology
- ✓ economics / marketing
- ✓ ecology
- technology

The research is conducted by provincial level researchers on the ecological, economic, social benefits of the water cellars, mainly.

FINANCING AND EXTERNAL MATERIAL SUPPORT

Annual budget in USD for the SLM component
- < 2,000
- 2,000-10,000
- 10,000-100,000
- 100,000-1,000,000
- > 1,000,000

Precise annual budget: n.a.

Approach costs were met by the following donors:
- government (Local founds): 15.0%; other: 85.0%

The following services or incentives have been provided to land users
- ✓ Financial/ material support provided to land users
- Subsidies for specific inputs
- ✓ Credit
- Other incentives or instruments

Labor by land users was
- voluntary
- food-for-work
- paid in cash
- rewarded with other material support

Credit

Conditions: repayment conditions: credits are sometimes used, with interest rate similar with that of commercial loan.
- Credit providers: n.a.
- Credit receivers: n.a.

IMPACT ANALYSIS AND CONCLUDING STATEMENTS

Impacts of the Approach

Wocat SLM Approaches
Rainwater Cellars introduced through government support
Did other land users / projects adopt the Approach?
It has been adopted extensively by neighboring provinces. Chinese Women's Federation has initiated the public welfare program named 'Mothers Water Cellar' in northern China.

Main motivation of land users to implement SLM
☑️ n.a.

Sustainability of Approach activities
Can the land users sustain what has been implemented through the Approach (without external support)?

<table>
<thead>
<tr>
<th>Yes, little</th>
<th>Yes, moderately</th>
<th>Yes, greatly</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗</td>
<td></td>
<td>✔️</td>
</tr>
</tbody>
</table>

CONCLUSIONS AND LESSONS LEARNT

Strengths: land user's view
Strengths: compiler's or other key resource person's view
- solve the problems of aridity and drinking water for human and livestock (How to sustain/ enhance this strength: continued project support)
- strong extension mechanism (How to sustain/ enhance this strength: further strengthen the role of technical extension organizations)
- improve farmer's life (How to sustain/ enhance this strength: develop dryland agriculture industry)

Weaknesses/ disadvantages/ risks: land user's view → how to overcome
Weaknesses/ disadvantages/ risks: compiler's or other key resource person's view → how to overcome
- high investment for technology adoption → use of micro-credits, optimized use of farming technology for high benefit agriculture.
- weak monitoring and evaluation → establish participatory monitoring and evaluation mechanism.

REFERENCES

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Full description in the WOCAT database
https://qcat.wocat.net/en/wocat/approaches/view/approaches_2432/

Linked SLM data

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- n.a.