World Bank Loan Assisted Water Saving Irrigation Project
Turfan Prefecture, Xinjiang Uygur Autonomous Region

Ethnic Minority Development Plan (EMDP)

Turfan Water Conservation Bureau, Xinjiang Uygur Autonomous Region

2008-09-09/2008
Table of Contents

1 Summary of the review on the relevant policies to EM groups’ development and the gathered baseline information on the affected Indigenous Peoples’ communities, their land and territories, and natural resources .............................................................. 3
  1.1 Conclusions of the review on the relevant policies to EM groups’ development .......... 3
  1.2 Resident distribution of EM groups in the project areas ............................................. 3
  1.2 The ethnic group composition of the survey villages in accordance with the feature of EM groups’ resident distribution in project areas ................................................................. 4
  1.3 Uygur Language and Characters ............................................................................. 5
  1.4 Customs of Uygur ................................................................................................. 6
  1.5 The baseline data and information of the survey villages on demography, resources such as arable land, irrigation types, composition of farm household systems, main crop species, etc. ................................................................................................................................. 9

2 Summary of Social Assessment ................................................................................. 13
  2.1 Methodologies of Social Assessment ........................................................................ 13
  2.2 The main findings and conclusions of Social Assessment ......................................... 13

3 Summary of the results of the free, prior, and informed consultation with the affected Indigenous Peoples’ communities ............................................................................................................. 14
  3.1 Process of EM community consultation ................................................................. 14
  3.2 The findings of community consultation ................................................................. 15
  3.4 The conclusions of EM community consultation .................................................... 25

4 The Logframe of EMDP of Turfan Water Saving Irrigation Project in social aspects .......... 27

5 The framework for ensuring extensive consultation and informed participation of local EMG during project implementation ..................................................................................................................... 32
  5.1 Organizational structures ....................................................................................... 33
  5.2 Regulations and norms of consultation ................................................................... 35
  5.3 Actual operation ...................................................................................................... 35
  5.4 Supervision and M&E ......................................................................................... 36

6 The action plan of measures to ensure that local EM groups receive social and economic benefits from the project, which are culturally appropriate, and to avoid or mitigate the adverse impacts if identified during the SA ......................................................................................................................... 37

7 The costs estimated for the measures and actions designed in the EMDP, in consideration of combination with the project activities ............................................................................................................. 39

8 Mechanism of the project for EM communities to express opinions and grievances caused by project implementation .................................................................................................................. 40

9 Mechanisms and benchmarks appropriate to the project for M&E and reporting on the implementation of the EMDP .................................................................................................................. 42
1 Summary of the review on the relevant policies to EM groups’ development and the gathered baseline information on the affected Indigenous Peoples’ communities, their land and territories, and natural resources

1.1 Conclusions of the review on the relevant policies to EM groups’ development

Turfan Prefecture and the 3 project counties/city belong to Xinjiang Uygur Autonomous Region. The “EM Autonomous Region Law” stipulated the autonomous administrative institute to protect the rights and interests of EM groups. Because of the autonomy and the population composition with EM groups as the majority and Uygur dominated, every policy, and construction and development project of Turfan Prefecture and the counties/city have EM groups as the main beneficiaries. Therefore, the policies have not particularly emphasized on the protection and benefits of EM groups, as in the non-autonomous region or areas.

After having reviewed the central government policies on EM groups’ development and the policies of prefecture and counties/city (the Chinese report provided the detailed review), it could be concluded that he policy environment, in terms of the irrigation management, water management reform, EM groups, poverty alleviation, women, etc. is favorite for the EM communities and farmers to participate in the project and be equally benefited, for the application of the Participatory project planning, implementation and management, and for the establishment, operation and development of the mechanisms and organizations such as WUA for EM community consultation and expression of own needs and concerns.

1.2 Resident distribution of EM groups in the project areas

Among the population of Turfan Prefecture, the EM groups account 77.1%, more than Han Chinese (22.9%). Among them, Uygur are the main, 70.4% of the total population, and Hui 6.4%. Such a feature remain the same in the 3 project counties/city. Among them, the proportions of EM and Uygur are higher in Tuokexun County, 84.1 and 77.0% respectively; the ones in Shanshan County are little bit lower, 71.3 and 66.2% respectively. Hui have a certain proportion in the three counties/city. The one in Shanshan County is lower – 4.9%, however, residing quite concentrate in the east suburb of the county town, therefore, the Dongbazha Hui Autonomous Township was established there. The other EM groups include Kazak, Mongolian, Xibo, Russian, Man, etc. most of them resid in urban area, accounting 0.3% of total prefecture’s population, and 0.2 – 0.4% in the counties/city.
Table 1.1  
Population and EM groups proportion of Turfan Prefecture and project counties/city (% , 2006)

<table>
<thead>
<tr>
<th>County/city</th>
<th>Popul.</th>
<th>Han %</th>
<th>EM %</th>
<th>Uygur %</th>
<th>Hui %</th>
<th>Others %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>589609</td>
<td>135265</td>
<td>77.1</td>
<td>414904</td>
<td>70.4</td>
<td>37633</td>
</tr>
<tr>
<td>Turfan</td>
<td>263184</td>
<td>55895</td>
<td>78.8</td>
<td>186781</td>
<td>71.0</td>
<td>19538</td>
</tr>
<tr>
<td>Shanshan</td>
<td>214865</td>
<td>61589</td>
<td>71.3</td>
<td>142206</td>
<td>66.2</td>
<td>10549</td>
</tr>
<tr>
<td>Tuokexun</td>
<td>111560</td>
<td>17781</td>
<td>84.1</td>
<td>85917</td>
<td>77.0</td>
<td>7546</td>
</tr>
</tbody>
</table>

(Date source: Statistic yearbook of Turfan Prefecture, 2007)

The proportion of EM groups is even larger in rural population, accounting 89.5% of the total, higher than the 77.1% of total prefecture’s population (see next table). In the project areas, the rural 60

Hui population proportion (7.0%) in Shanshan County is higher than the other two. In all the project townships and villages except for Dongbazha Township with more Hui population (59.0%), Uygur have majority of population while the EM groups have very few or even no. Because the project covers all of the rural townships, all administrative villages have EM groups occupy the majority of population and farm households while Uygur dominate the most.

Table 1.2  
Rural population and EM groups proportion of project counties/city (%, 2008)

<table>
<thead>
<tr>
<th>County/city</th>
<th>Rural popul</th>
<th>Han %</th>
<th>EM %</th>
<th>Uygur %</th>
<th>Hui %</th>
<th>Others %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>457024</td>
<td>10.5</td>
<td>89.5</td>
<td>382019</td>
<td>83.6</td>
<td>473</td>
</tr>
<tr>
<td>Turfan</td>
<td>202809</td>
<td>9.4</td>
<td>90.6</td>
<td>172839</td>
<td>85.2</td>
<td>10695</td>
</tr>
<tr>
<td>Shanshan</td>
<td>161632</td>
<td>11.3</td>
<td>88.7</td>
<td>132146</td>
<td>81.8</td>
<td>11224</td>
</tr>
<tr>
<td>Tuokexun</td>
<td>92592</td>
<td>11.3</td>
<td>88.7</td>
<td>77034</td>
<td>83.2</td>
<td>4811</td>
</tr>
</tbody>
</table>

(Date source: Provided by county/city water resource bureau, through coordination and collection)

1.2 The ethnic group composition of the survey villages in accordance with the feature of EM groups’ resident distribution in project areas

According to the results of Agro-ecological and Socio-economic zoning exercise made for the whole project areas and the main components of the project – reservoirs, canal lining and water saving devices on the field, the Social Assessment workshop at the prefecture determined to have 2 survey villages with differences in irrigation conditions and project components and 1 village with Kariz project in Turfan City, 2 villages with different conditions in Tuokexun County, one village each from the
south and north of Huoyanshan Mountain plus a Hui ethnic village of the Hui autonomous township and the villagers’ group of resettlement by reservoir in Shanshan County, totally accounting to 8 administrative villages and 1 villagers’ group. The zoning exercises were also made at the beginning of the survey in each project county or city. Then, the representative survey villages were identified according the number requested by the prefecture workshop. Among the survey villages, Qigaibulake Village in Turfan City was investigated after all the identified villages had been visited, because the Village located in the south lowland of the City, and has the severe saline and water deficit problems not covered by the identified villages, to make SA survey represent the comprehensiveness of the whole prefecture.

The ethnic composition of the survey villages’ households further reflected the feature of the EM groups’ resident distribution (see table next). Except for Qianjie Village with Hui as the main EM group, all the others with Uygur being the main. Among those, all households are Uygur in Qigaibulake and Tuyugou Villages and Tunaimaili Group. Only a few Hui in Ya’er and Qiketai Villages (8.9%3.0%). Only Ya’er Village has very few other EM groups (0.4%, Wuzibieke and Kazak). Quite more villages have Han households but with comparatively larger portions in Qiketai and Aoyiman Villages (22.1 and 11.7% respectively), the others have only 1.6 – 3.0%.

<table>
<thead>
<tr>
<th>Village/group</th>
<th>Total HH</th>
<th>Uygur</th>
<th>%</th>
<th>Hui</th>
<th>%</th>
<th>Han</th>
<th>%</th>
<th>The others</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ya’er</td>
<td>1018</td>
<td>896</td>
<td>88.0</td>
<td>91</td>
<td>8.9</td>
<td>27</td>
<td>2.7</td>
<td>4</td>
<td>0.4</td>
</tr>
<tr>
<td>Meiyaogou</td>
<td>305</td>
<td>296</td>
<td>97.0</td>
<td></td>
<td></td>
<td>9</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Awati</td>
<td>430</td>
<td>417</td>
<td>97.0</td>
<td></td>
<td></td>
<td>13</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qigaibulake</td>
<td>940</td>
<td>940</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tunaimaili</td>
<td>24</td>
<td>24</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuyugou</td>
<td>856</td>
<td>856</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qianjie</td>
<td>255</td>
<td>1</td>
<td>0.4</td>
<td>250</td>
<td>98.0</td>
<td>4</td>
<td>1.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qiketai</td>
<td>467</td>
<td>350</td>
<td>74.9</td>
<td>14</td>
<td>3.0</td>
<td>103</td>
<td>22.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aketake</td>
<td>450</td>
<td>441</td>
<td>98.0</td>
<td></td>
<td></td>
<td>9</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aoyiman</td>
<td>580</td>
<td>512</td>
<td>88.3</td>
<td></td>
<td></td>
<td>68</td>
<td>11.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 1.3 Uygur Language and Characters

Uygur has its own language and character. Uygur language belongs to Turki, Altai language system. According to the history, Uygur used Chahetai language based on Turkish, Mionan and Arab. The Uygur language used nowadays is based on Chahetai language. There are 32 letters. The old-fashioned Uygur language writes from right to left. In year 1960, Uygur language has been reformed to be a new set of Uygur language and in 1982, the old-fashioned Uygur language resumed.
The difference between dialects in grammar is limited and little difference in pronunciation. There is no language obstacle within different areas in Xinjiang. The modern Uygur language is classified as central dialect, Hetian dialect and Luobu dialect. Many Uygur people also speak Chinese and Kazak as a result of communication with other nations.

**Religion of Uygur**

In terms of nationality and religion, the central government of China and State Council pointed out clearly in the “The Decision of Strengthening the Nationality Affairs and Accelerating the Social-Economic Development and Ethnic Minorities in Ethnic Minority Areas” that the state will prepare “The Eleventh Five Year Plan” for ethnic minority areas. It is the requirement of the State Council in the “Law of Self-Government in Ethnic Minorities Areas in The People’s Republic China” that the government at higher level should support the social-economic development in the ethnic minority areas, consider the special needs and characteristics of the ethnic minority, while the government are making middle and long term development plan. The autonomous region committee in Xinjiang (The Bureau of Religion) prepared “The 11th Five Year Plan for the Affairs of Nationality and Religion in Xinjiang Autonomous Region”. It says in the plan that “Carrying out all the favorable policies of the state and the regional government, continue to promote the development of social-economy.” “Stick to the scientific development view and promote the fast development in the ethnic minority areas”.

The Uygur believe in Shamanism, Manichaeism, Nestorianism, Zoroastrianism and Buddhism in ancient times. In 16 century, Islam has become the ruling religion in Uygur areas. Most of the Islam believed in Sunnite and some people believed in Yishanpai. After the establishment of the PRC, the senior level religious people are not allowed to interfere judicial and education. The normal religious activities have been protected by law.

**1.4 Customs of Uygur**

A. Marriage and Family

Monogamy is the basic rule in Uygur marriage. Intermarriage normally occurred within the nation or between the ethnic believed in Islam. Husband and wife are the base in the family, and members include direct relatives from the past three generations. Within families which have many springs, the sons lead a separate life after marriage and the youngest son stays with parents. The women’s status in the family was low because the marriage was arranged by parents although monogamy is the basic rule in Uygur marriage. The old has been respected in the families and in the sociality after the establishment of PRC.

B. Clothes

Uygur men usually wear gowns and it is called “Chipan” in Uygur, tight with long belt, without button. The rural women usually wear bag sleeve one-piece dress, the coat is black front opening sleeveless garment. The women in the urban areas usually...
wear western-style coat and skirts. Both men and women love to wear embroidery small cap and it is called “Paduo” in Uygur. Ladies love to wear ear ring necklace. Both men and women love to wear boots.

C. Flower-trimmed bonnet

The history of flower-trimmed bonnet is long with many varieties and it is called “Paduo” in Uygur. The Uygur, Kazakhstan, Kirgiz and Hui like to wear flower-trimmed bonnet, the flower-trimmed bonnet is made of hand-stitching work and string of beads. It differs by nations and areas. The flower-trimmed bonnet is nice to look very enjoyable.

D. Courtesy

The courtesy of Uygur is closely related to religion. The courtesy reflects equality, friendship, respecting the old and caring the young. The ordinary people shake hands with each other the old were respected. The old kiss the younger generation between ladies. As the economy develops, these courtesy shows ranking disappeared and the courtesy reflects friendship and love stays and new meanings was also added to these courtesy.

The Uygur are very hospitable and polite. When walking, the old walk first and when talking, the old talk first and when sitting, the old always seat in main position. The young are not allowed to smoke or drink in front of the old. Friends and relatives greet each other by shaking hands and then bow back to each other, greeting members in the families. Women trunk bend to each other after greeting. When sitting in house, it is required to squat and stretch legs face the bottom of the feet to others is not permitted. Both hands are required to take over objects or providing tea to guests, one hand is considered to impolite.

E. Washing

The nations who believed in Islam have a clean habit. They always wash their face from kettles, not basin. They must wash their hands before eating and drinking tea. They love to eat rice with their hands, that’s why washing hands is so important. When hands have been washed, squeeze water and then dry it. Dishware has to be washed one by one and dry it afterwards. Bowls are washed to dry naturally.

F. Taboo

Uygur believed in Islam has taboos like inhumation, not cremation. It is not allowed to talk loud around mosques or tombs. It is not allowed to stir up the food in plate, no leftover. Food dropped on the ground should be picked up in the napkin, not to be mixed with other food. When eating or talking to people, blowing one’s nose or spitting is not allowed. Pork, donkey meat, mule meat, dog meat or dead animals are not allowed to eat. In dressing, short clothes are not allowed and coats should be as long as over the knees and trouser-legs should be at the feet.

G.: Funeral
The Uygur funeral is an event both solemn solemnity. The funeral shall follow the Islam costume and is inhumation popular. According to Uygur costume, people died on Friday, Idal-fitr or Corban is a happy ending. Many people believe that in their old age, one wants to return to one’s hometown, especially the Uygur, people would rather chose to die at home and the corpse be kept at home for no more than two days to prevent decaying.

The corpse has to be cleaned before inhumation. The dead male shall be cleaned by monk plus one or two older. The dead female shall be cleaned by old ladies and boys or girls can participate. After cleaning, the male corpse will be wrapped with three layers of clothe and female corpse will be wrapped with five layers of clothe. If the patient cannot be cured, people would rather chose to die at home than in the hospitals. If somebody died outside, their relatives would work out all ways to carry corpse back home to inhumation.

The relatives inform others after corpse has been treated, especially for the old. When people died, their face have to face west and be covered by white clothe, the mouth has to be tight by clothe to close the mouth, looks like the dead is sleeping. Nobody shall stay at home when cleaning. The Uygur normally bury corpse in the evening if people died in the morning and bury corpse at noon if people died in the evening. After corpse has been cleaned, it be put on the wood frame and coved by white clothe and then escorted by the relatives to mosque for funeral (Ladies not participate).

In mosque, the imam will distribute money and properties to imams in the mosque and others, the last alms, and then imams will patter and pray. The corpse then is sent to tomb. The tomb is 2 meters long, 1 meter wide and 2 meter deep. The imam patter before inhumation. All people participate the funeral grab soil to spread around the dead and then block the tomb by big stone. Most of the tombs are rectangle. Some tombs look like palace.

The relatives all cry when people died and others come to condolence when heard the crying. The relatives praise the good deeds of the dead while they cry to express the sadness. The close relatives of the dead wear white clothe belt and ladies wear white end shield, too.

“Naizer”, which is a ceremony to mourn the dead will be held on the third, seventh and 14th day after the funeral.

H. Housing

The Uygur farmers use soil and mud to build their houses. The house usually have roof for lighting and fireplace inside fro heating and cooking. In some houses, there are niches made by plaster for articles for daily use, also as a ornament, too. For middle class families, they have house for winter and house for summer. Peach trees, apple trees, apricot trees, mulberry trees and flowers are planted around the houses. Some houses have grape in front of the house as pergola.

I: Food
The daily food of Uygur farmers are Uygur bread, noodle, mutton with rice, tea and milk. They treat guests with zhuangfang. Barbeque, Uygur bread and dumplings are favorite food of Uygur people. The Uygur love fruits, too.

J.: Traditional Holidays

The traditional holidays of Uygur include: Balsam, Corban and Nauru. The annual Corban is the most important one. The families believed in Islam prepare “Sainz” (a kind of fried food) and slaughter goats and chickens for the festival. Peoples wear new clothes to greet each other during the festival.

1.5 The baseline data and information of the survey villages on demography, resources such as arable land, irrigation types, composition of farm household systems, main crop species, etc.

From the basic data of the survey villages (see the table on next page) gained from, and the seasonal calendars made by, the key informants of the village leaders, the differences in demography, natural resources, farm livelihood systems, etc. could be found among the 10 survey villages and group.

From the summary table, it could be found that the farming systems in Turfan Prefecture could be categorized into 4 types (the Chinese report made the detailed descriptions):

1) The system with the surface water as the main irrigation type and grape as the main crop, including Ya’er and Meiyaogou Villages in Turfan City and Tuyugou and Qianjie (Baka reclaimed land uses surface water but the village residence has not since 1980s due to the man-made reasons) Villages.

2) The system with underground water wells (a few with surface water) as the main irrigation type and cotton inter-cropping with cumin or melons as the main cropping pattern, including Awati Village in Turfan, Qiketai Village in Shanshan and Aketake and Aoyiman Villages in Tuokexun County.

3) The system with pure well irrigation in Qigaibule Village of Turfan City.

4) The system of livestock grazing, including the herder households of Meiyaogou Village and Tunaimali Villagers’ Group.
<table>
<thead>
<tr>
<th>Village/group</th>
<th>Ya’er</th>
<th>Meiyaogou</th>
<th>Awati</th>
<th>Qigabulake</th>
<th>TunaiMaili</th>
<th>Tuyugou</th>
<th>Qianjie</th>
<th>Qiketai</th>
<th>Aketake</th>
<th>Aoyiman</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of group</td>
<td>9</td>
<td>-</td>
<td>4</td>
<td>10</td>
<td>1</td>
<td>11</td>
<td>-</td>
<td>6</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Households</td>
<td>11,018</td>
<td>305</td>
<td>430</td>
<td>940</td>
<td>24</td>
<td>856</td>
<td>255</td>
<td>420</td>
<td>450</td>
<td>580</td>
</tr>
<tr>
<td>Population</td>
<td>4,506</td>
<td>1,159</td>
<td>2,460</td>
<td>5,300</td>
<td>116</td>
<td>4,571</td>
<td>1,292</td>
<td>1,893</td>
<td>1,740</td>
<td>2,713</td>
</tr>
<tr>
<td>Arable land (mu)</td>
<td>8,123</td>
<td>1,276</td>
<td>10,000</td>
<td>15,700</td>
<td>93</td>
<td>3,800</td>
<td>1,140</td>
<td>6,000</td>
<td>4,000</td>
<td>6,800</td>
</tr>
<tr>
<td>Among: family contracted</td>
<td>4,900</td>
<td>707 HH</td>
<td>600</td>
<td>11,000</td>
<td>3,800</td>
<td>1,140 (700 mu in Bake)</td>
<td>4,000</td>
<td>3,240</td>
<td>4,600 (2,050 people)</td>
<td></td>
</tr>
<tr>
<td>Arable and contracted land/ha</td>
<td>1.8/1.1</td>
<td>1.1/0.5</td>
<td>4.1/2.4</td>
<td>3.0/2.1</td>
<td>0.8</td>
<td>0.9</td>
<td>3.2/2.1</td>
<td>2.3/1.9</td>
<td>2.5/1.7</td>
<td></td>
</tr>
<tr>
<td>Fruits (other than grape, mu)</td>
<td>481 (31 HH)</td>
<td>&gt; 1000 trees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woodland (mu)</td>
<td>1,351</td>
<td>100 (&gt;200 mu flooded away in 2005)</td>
<td>52,000 trees, 20 mu wild brush</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grassland (10,000 mu0)</td>
<td>18.5 (22 herder HH)</td>
<td>? (also rent from other villages)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irrigation type + infrastructure</td>
<td>Surface water, 25 wells, 3 Kariz</td>
<td>Surface water mainly, 400 mu more rely on river and springs</td>
<td>53 collective wells, 24 private well (for reclaimed land), for 9,000 mu totally, surface water 1,000 mu</td>
<td>112 wells (21 private for 4000 mu reclaimed), 2000 mu low pressure pipe</td>
<td>River water</td>
<td>15 wells, surface water</td>
<td>Surface water mainly in Bake with 4 wells prepared pure well (5 irrigation at village)</td>
<td>Surface water for contracted land, 23 wells, 7.5 Kariz (3.5 dried up)</td>
<td>Surface water for 1,000 mu, 3,000 mu rely mainly on wells</td>
<td>Surface water mainly, 1,000 mu rely on wells</td>
</tr>
<tr>
<td>Cropping pattern (mu)</td>
<td>All grapes (bear fruits 7642 mu)</td>
<td>Grape 1,116 Walnuts 160</td>
<td>Grape 2,000 (1000 newly planted), melon-cotton 5000 cumin-cotton 2000 dates, plum 1000</td>
<td>Cotton-cumin 11000, melons 3000, grape 1000</td>
<td>Potato, wheat, soybean, corn or alfalfa</td>
<td>Grape 3800 (3000 mu dig and renewed, 90% HH could not yet due to poverty)</td>
<td>Grape 940, cotton 150, greenhouse vegetable 50</td>
<td>Grape 2350, cotton 2,950, windbreak belt 400</td>
<td>Cotton-cumin, melons, sorghum, dates (not gain benefit yet) vegetable 100 (18 HH)</td>
<td>Cotton-cumin or melons 3,000, dates-cotton, cumin, melons, etc. grape 100</td>
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</tr>
<tr>
<td>Livestock</td>
<td>Fattening (200 + HH)</td>
<td>5,500 goats and sheep</td>
<td>Fattening</td>
<td>20,000 (goat &gt; sheep)</td>
<td>80% HH, fattening</td>
<td>40 HH, fattening</td>
<td>40 HH, fattening</td>
<td>45 HH, fattening</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>Commuter, 17 family tourism</td>
<td>13 family tourism, 300 wage labor nearby</td>
<td>5% labors in marketing</td>
<td>HH with less goats to look after for the rich</td>
<td>Harvest cotton for others</td>
<td>20 HH run shop + restaurant, 300 servants</td>
<td>Wage labor 40 HH, shop + eating 20, 10 stone culture</td>
<td>120 HH and 200-300 people collect cotton</td>
<td>400 wage labor, collect cotton., etc.</td>
<td></td>
</tr>
<tr>
<td>Net income/ea</td>
<td>4,935</td>
<td>5,000</td>
<td>4,600</td>
<td>1,918</td>
<td>2,100</td>
<td>3,600</td>
<td>3,190</td>
<td>2,400</td>
<td>3,180</td>
<td></td>
</tr>
</tbody>
</table>
Except for Qigaibulake Village complementarily investigated by the end of SA had no household questionnaires made, the other 8 survey villages and 1 villagers’ group made questionnaire interviews of 74 households totally, among which there were 69 Uygur and 5 Hui households; 345 population with Uygur 325 and Hui 20, males 189 and females 156, 62 younger than 16 years old, 246 adults of 16 – 60 years old and 37 elderly than 60. For educational level, 12 university or college, 35 senior high or vocational school, 117 junior high school, 95 elementary and 5 illiterates or semi-illiterates. Among the schooling students, 4 university or college, 5 senior high or vocational school, 12 junior high school, 26 elementary. There were 13 permanent migrants and 14 seasonal migrated labors, amounting 5.3 and 5.7% of labor population of 16 – 60 age old respectively, only 11.0% in total. Among the adults, 7.6% have long term ill, 3.4% disabled and 2.7 drop-outs due to poverty.

In the surface water dominated mixed irrigation areas with grape as the main crop, there was 1.8, 1.4, 0.6 and 0.8 mu arable land/ca in Ya’er, Meiyaogou, Tuyugou and Qianjie Villages respectively, 1.2 mu on average; sown area of grape occupied 85.2% of the arable land. In the underground water well or surface water dominated mixed irrigation areas with cotton inter-planting with ? or water melon/sweet melon as the main cropping pattern, there was 3.8, 1.3, 2.7 and 2.6 mu arable land/ca in Awati, Qiketai, Aketake and Aoyiman Villages respectively, 2.8 mu on average; sown area of cotton inter- or single planting occupied 65.8% of the arable land.

About the importance of the irrigation types, in Ya’er Village with grape as the main crop, 6 households ranked Kariz as the primary, 3 and 1 ranked surface water and underground wells as the primary respectively, which showed the importance of Kariz to irrigation water supply in this village. In Meiyaogou Village, 9 households ranked surface water as the 1st and one the river water. In Tuyugou Village, 10 households ranked surface water as the 1st and one the underground water well. In Qianjie Village, although the arable land in Bake reclaimed land 23 km away from the residence is irrigated mainly with surface water, but the land in the village residence has not since 1980s due to the artificial reason, the four interviewed households ranked the wells as the 1st. Among the villages with cotton inter-cropping as the main cropping pattern, 9 interviewed households ranked the wells and 1 the surface water as the 1st in Awati Village, all 5 households ranked the wells as the 1st in Qiketai Village, 6 households ranked wells and 4 surface water as the 1st in Aketake Village, and 8 households ranked surface water and 3 the wells as the 1st in Aoyiman Village. The findings showed the differences in irrigation types existing among the communities or villagers’ groups in the project villages.

The above baseline data on the arable land, irrigation type, main crop or cropping pattern, etc. showed that the classification of farm household livelihood systems made the previous sub-chapters was basically correct and in accordance to the realities of the project areas.
2 Summary of Social Assessment

2.1 Methodologies of Social Assessment

The Framework of Social Assessment was designed according to the Bank’s safeguard document of OP4.10 and the annexes as well as the objectives and components of the project, and further adapted appropriately to the realities after arriving at the project areas. Successively in Turfan City, Shanshan and Tuokexun Counties, in addition to the collection of and review on the relevant policies, documents and data, the workshops were held at the prefecture and county/city levels. The Agro-ecological and Socio-economic zoning exercises were made, the number and location of survey villages determined and stakeholder analyses made.

The SA survey was conducted together with EM community consultation in the investigated villages. Through the workshop of the village and group leaders, the differentiations among villagers’ groups and farm households, and the representatives of every party were identified, to ensure the poorer communities, EM groups, the poor and women to participate in SA and community consultation process, to exert their rights of to be informed, participation, expression own problems, needs and opinions, etc. The interviews with the household questionnaires have a certain functions of the consultation, and the collection of data and information as the important bases for SA and identification of M&E indicators as well as the benchmarks. The Chinese version the report described the detailed procedures and methods applied.

2.2 The main findings and conclusions of Social Assessment

1) The policy environment of the nation, autonomous region, Turfan prefecture and the project counties/city on irrigation management, water management reform, EM groups, poverty alleviation, women, etc. is favorite for the EM communities and farmers to participate in the project and be equally benefited, for the application of the Participatory project planning, implementation and management, and for the establishment, operation and development of the mechanisms and organizations such as WUA for EM community consultation and expression of own needs and concerns.

2) Among the stakeholder institutes to the realization of the project’s social objectives and protection of EM groups’ interests and rights, the county magistrates responsible for the project and the leading groups play very important roles of decision-making. The project has the Water Resource bureaus as the main institute for planning, implementation and management. However, it has no enough knowledge and skills of the Participatory development and project approach. The other relevant institutes could play their respective roles to the project.
3) The population and leaders’ compositions have EM groups as the main in the project villages, among whom Uygur dominate or the only EM group in the villages. Hui has only small amount and comparatively concentrated residence. The other EM groups are very few and only the individuals. Therefore the project has Uygur as the main beneficiaries, and SA and community consultation had them as the main participants, which is in accordant with the requirement of WB for the work.

4) There are obvious differences in the conditions of arable land, irrigation water use and the other development elements among the sub-villages or villagers’ groups and the farm households within an administrative village.

5) The composition of the farm household livelihood systems in Turfan Prefecture has very strong interdependency on the natural resources and infrastructures such as water and irrigation. Plus the factors of arable land acreage per capita, soil quality, etc. four kinds of systems were formed, including the ones with the surface water as the main irrigation type and grape as the main crop, with underground water wells (a few with surface water) as the main irrigation type and cotton inter-cropping with cumin or melons as the main cropping pattern, and with pure well irrigation, and of livestock grazing. Such compositions and differences among them are rational naturally, and reflected the rational selections and long time experiences of local farmers. The activities of farm livelihoods have obvious seasonality. Women play very important roles in the productions and livelihoods of the farm households.

6) The framework and methodology of Social Assessment were effective. The resident distribution of EM groups in the project areas and the differences among the villages/groups and farm households were identified. It ensured the participation of EM communities and farmers, esp. the poorer communities and households as well as women in the process of SA and consultation, to exert their rights to be informed, participate, express, etc. The inter-dependent relations between the farmers’ livelihoods and the conditions of irrigation water use and the other natural resources have been concretely analyzed and understood.

3 Summary of the results of the free, prior, and informed consultation with the affected Indigenous Peoples’ communities

3.1 Process of EM community consultation

EM community consultations were conducted mainly through the workshops of the representatives of every type of EM groups and farm households, and women, to assess the effects of the project and analyze the countermeasures to overcome the possible negative effects.
At the beginning, the SA consultant introduced the objectives and contents of the project, the importance and methods of SA and EM community consultation, and the concerned WB requirements and policies of central government, to mobilize the representatives to participate and disseminate the information to the villagers. Then, the village and group leaders presented the maps, tables and calendars produced from their workshop, to have the participants feel the relevance of such participatory methods and the outputs to their own interests, and strengthen their enthusiasts to participate in the consultation and express own wills. The discussions were conducted by 3 groups of the poor, the other households and women separately, to analyze the situation and problems in water use, the causes and solutions, and the possible positive and negative effects, against the main project components, and the countermeasures. In the villages with fewer participants, the workshops were conducted with or without division of men and women for separate discussion. The discussions were moderated by the consultant and the members of SA team. It paid particular attention to the use of EM language and characters. When using Uygur, the writing sequence was from the right to the left. The topics include:

- The situation and problems of the village/villagers’ groups and the households in irrigation water use, the causes and the countermeasures willing to adopt; and

- The positive functions and negative effects of the proposed project components on EM households’ livelihoods, the problems possibly happening during or after the project implementation, and how to avoid or mitigate and resolve them.

After the group discussions, the plenary presentations were made to communicate, revise and improve the discussion results; and tried as much as possible to reach the consensus among the participants through consultation.

3.2 The findings of community consultation

3.2.1 Situation of, and problems in irrigation water use of EM communities and households, the causes and countermeasures

The Chinese version of the report presented some examples of the visualized focused group discussion and summarized the results of the discussions and consultations for the 4 systems above mentioned separately. Then summarized the problems in agricultural water use, the causes and the negative effects in social aspect in whole Turfan Prefecture, with the diagramming (see the next page), according to the results of EM communities and farmers’ own discussions and analyses, and provided a base for the identification of the project social objectives and formulation of EMDP.

From the diagram, it could be found the core problem is “Farmers’ irrigation water demand could not be satisfied”, which was concretely reflected by “Volume and timing of surface water could not meet the demand and water fee increased”, “Many groups, villages and even townships at channel tail or lower reaches could not use
surface water”, “Cost of well irrigation increased, even not profitable at all”, “Degree of Kariz to meet irrigation and drinking water demand became less and less”. Besides these, there is also the problem of “saline water and land” in the lowland of south Turfan City.

The causes include:

-  The surface water: Due to “lack of fund” and “No reservoir in upper reaches to store flood water” caused “Flood destroyed dams, channels and forest, water wasted”; “lack of fund” also made “Branch and sub-branch canals lack maintenance, with serious leakage and evaporation”, “channels below branch the earth ones, and long, with serious leakage and evaporation” and “lack of field ditches, land uneven, backward flood irrigation”. Also because of “lack management”, “too much exploration of land before 2005, too much land but less water, made surface water insufficient”. Besides, “Industrial water use, esp. of oil field, increased greatly”.

-  Underground water wells: Also because of “lack of management” and “surface water insufficient”, “too many and densely drill wells before 2005, esp. in upper reaches, over exploited”, plus “industrial use increased greatly”, lead “underground water table seriously dropped”, “outlet volume decreased, time spent extended; some have to be renewed or deepened, even can’t be used ”.

-  Kariz: Due to “lack of fund” and “management”, Kariz “could not get maintained, ditches leak seriously”; plus “water table decreased seriously”, made “outlet volume decreased, irrigation time longer; many can’t be used anymore”.

-  Besides, the irrigation projects’ “planning, implementation and management lack community participation”, led “coordination among government agencies not enough and demand of communities for infrastructure improvement not got responded upon”, “leakage-prevention channels made windbreak trees dried up”, “some engineer too poor in quality and could not be accepted”.
Figure Causal diagram on the problems in agricultural water use in Turfan Prefecture, the causes, and social negative impacts
The main social negative impacts include: “affected the crop yield, (farmers’, esp. the poor’s) income and profit, restricted the cropping pattern adjusted to higher profitability (grape, melons, etc.)” and “affected the social equity in irrigation water use, enlarged the wealth disparity among the communities and households”.

3.2.2 The functions, possible negative effects and problems emerged and countermeasures

From the results of community consultation on the solutions to resolve the problems in irrigation water use, it could be concluded that the proposed project components of the reservoirs, canal lining, field water saving engineers, etc. are in accordance with the wills of EM communities and farmers, and supported fully by them. Some of the countermeasures suggested by them went beyond the scope of the project proposal and need the other sources’ support. It was included into the project activities of EMDP, to remind the project initiating the cooperation mechanism with the other projects of local government for mutual complementation, to respond the needs of EM communities and farm households more comprehensively and integratedly.

The positive functions are obvious. It includes:

- The reservoirs could store the flood water, to avoid disasters and waste of water, solve the seasonal shortage of irrigation water, and meet the demand of Turfan Prefecture to develop industry and urban area.

- Canal lining could reduce the waste of water evaporation and leakage, to have more communities, esp. in the lower reaches and channel tails reduce their dependence on underground water wells; plus the field water-saving engineers, to have the water fee and electricity costs reduced in all the irrigation areas.

- The village with Kariz project will improve its supply of irrigation and drinking water, but also have such a long historic wisdom of Uygur be sustained.

- After the irrigation water supply is improved, farmers could adjust their cropping pattern, to develop more high-profitable crops of grape, melons, etc.; the labor inputs to irrigation management could be reduced, to increase the migration or commuters for wage labor or develop the service industry.

However, such benefits could not be brought about naturally and the combination with the local conditions and farmers’ wills must be insisted on. It needs the project continues the application of the Participatory approach and methodologies of project planning, designing, operational planning, implementation, management, M&E and insists on the community participation and consultation, then the problems happened in the previous project could not occurred anymore.
The survey villages made thorough discussions on the possible negative effects caused by the project activities or problems possibly happening during project implementation or the use of engineers. The following situations or instances need the project planning and designing to consider:

**About the water-saving engineers.** The project proposed the water-saving adopt the low pressure pipes and dripping irrigation. It seems that the technicians prefer the dripping. However, the villagers doubted the suitability of dripping irrigation;

- In Awati Village, dripping irrigation was tried in 2006 – 07 with quite good effects. Although the inputs were high, the farmers want to do and borrow loan for that if the conditions appropriate. However, some of them also mentioned that the pipes need to be collected before winter, and could not last 2 years, as it was said, and used anymore because of the poor quality. They need the better ones and the training on its use too. As for whether or not needing compensation for stopping the well use, they considered that the concerned households should not be compensated, if the dripping could meet their irrigation needs.

- The amount of dripping water is too little to meet the requirement (of grape, and even of cotton-cumin inter-cropping – Aoyiman Village), esp. in June and July with high temperature, and must be mixed with surface water irrigation. Some of the land growing grapes are sandy and even more not suitable to dripping irrigation. It involves quite a lot of households with different crops grown so that it is also difficult to manage and use dripping uniformly. They considered the low pressure pipe more practical, which has leaking and can save water, irrigating 1 – 2 times more with the same water volume, with high suitability to different crops; and the needs to occupy some land for pipe construction could be dealt with through mutual consultation.

- The participants in Qianjie Village said that the grape grain of the dripping pilot and demonstration project in nearby village was too small for selling; burying grape vines in autumn needs the earth wet, otherwise it would by dried up, dripping irrigation could not make it; the farmers use farm manure for grape grow, own produced and no need to buy, however, dripping could not have the earth wet enough to make the manure functioning; therefore, dripping needs the liquid fertilizers uniformly among the households sharing the same irrigation system, which made it difficult to share the costs among them and to arrange the irrigation if the crops they grow are different or not the same in the cultivation seasons. However, they thought that the management difficulties or issues could be resolved through the establishment and operation of WUAs.

- The participants in Aketake Village considered that the experiments or pilot could be conducted on the suitable land (for Chinese dates; grape not suitable – the problems in manure or fertilizer as the mentioned above, and its root system being
too large), however, it could be disseminated only after the pilot and demonstrations succeed, because the wind is too strong and soil sandy there. They hope the dripping irrigation could be applied for the construction of the windbreak belt urgently needed by them. The thought that low pressure pipes might not be suitable for the villages with the farmers growing different crops. A nearby village made the pilot, but did not use it anymore.

**About canal lining.** Except for Tuokexun County with some field channels planned, the canal lining proposed by the project are mainly the main, branch and sub-branch canal. However, the participants of the survey villages in Turfan City and Shanshan County reflected that the distributaries and field channels below the branches are earth ones with serious leakage but they don’t have own fund to line the channels. The fund is for the construction materials, and they themselves could contribute their labor. Therefore, it is better for the project to suggest, if it could not be included into plan, the local government support the needs with the other projects. For the channel lining project within the village boundary, the villagers agreed that the villagers’ groups and farm households in the lower reaches and channel tails should be benefited first, for them to be also able to use surface water (Awati Village). The land occupation by the channel lining could be solved through mutual consultation. Some survey villages also mentioned particularly that:

- The overground channels should be remained, even if the lining or low pressure pipes are made or built, to irrigate the windbreak belt trees (Ya’er Village);

- Tuyugou Village would like the dam in the branch canal collapsed by flooding included into the project plan;

- Qigaibulake Village hoped the project planned canal lining could be extended from the place where Qiatekele Township government located to their village (14 km) and could also use surface water. If it could not, the saline water problem should be resolved first, by drilling deep wells to penetrate the saline layer; after the water quality improved, the high profitable crops such grape could be grow more. Meanwhile they also hoped to be included into the water-saving project (it seems not be included in the project proposal)m with low pressure pipes (there is too strong sunlight, high temperature and strong evaporation for dripping irrigation to meet the water demand for crops to grow).

### 3.2.3 The results of community consultation through household questionnaire

The results of household questionnaires also showed the supports of EM communities and farmers to the project proposals. Among the 57 interviewed households who made ranking of the importance for the project components, 38.6% ranked Reservoir as the 1st; among them, although the Dam will be built within the boundary of Meiyaogou Village, which might bring about negative effect on irrigation, and the
villagers of Tunaimaili group will be resettled due to Ertanggou Reservoir construction, 100% of the farmers interviewed in these two communities ranked it as the 1st. 29.8% of the 57 ranked canal lining as the 1st, the portion was much high in Aketake and Aoyiman Villages, 77.8 and 50% respectively, which showed the urgent demand for surface water of the farmers there, esp. in Aketake Village. 21.1% of the 57 ranked water saving irrigation as the 1st with the highest portion of 100% in Awati Village, which showed the severe deficit of water supply in that village. 10.5% of the 57 ranked Kariz as the 1st, all of whom come Ya’er Village where there will be the project of Kariz rehabilitation. The results also showed that the interviewed households fully understood the benefits to be brought about by the project.

About “whether or not understand the possible increase of water fee”. Among the 60 interviewed households who answered the question, 32 choose “understood”, accounting 53.3% and 28 “did not understand”, 46.7%. The answers to “why increase” include the promotion of water saving, lifting the awareness, reduction of water waste, large investment of project engineer, maintenance of canal and devices, ensuring the operation, etc. It showed that majority of farmers understand the necessity to rationally increase water fees.

Among 39 households who answered “the countermeasures”, 22 selected “increase inputs and raise crop yield”, accounting 56.4%; 17 selected “develop the high profitable cash crops and fruit trees”, 43.6%. It showed that the farmers have already adopted, and want to continue, the measures to deal with the trend of water fee increase.

Among the 41 interviewed households who answered “whether or not understand the resettlement caused by reservoir construction or occupation of arable land by canal construction”, 27 choose “understood”, accounting 65.9% and 14 “did not understand”, 34.1%. The answer to “if understood, how should make the resettlement and compensation of the land” was mainly “make the compensation according to the relevant policies of the nation”. It showed that the majority of farmers support the project components, understand the necessity to scarify part of private interests and belief in the national policies.

Among the 61 interviewed households who answered the question “whether or not understand the gradual and rational reduction of agricultural water use to develop local industry in the consideration of the limited water resource and the trend of urban and rural integrated development in Turfan Prefecture”, 44 choose “understood”, accounting 72.1% and 17 “did not understand”, 27.9%. Among the 52 households who answered to “whether or not willing to enter city for development”, 42 choose “want”, 80.8% and 10 “don’t want”, 19.2%. About “what want to do after entering city”, 23 choose “wage labor” and “running business” respectively, all accounting 44.2%, and 9 “engaging in eating and other services”, 17.3%. 23 households wanted to enter city with “whole family”, 44.2% and 13
“individually”, 25%. About the contracted arable land after entering city, 35 wanted “to keep” the use right, 67.3%; 8 “lease to the others”, 15.4% and no “return it to the collective”.

Such a result showed that majority farmers understand the necessities, to reduce agricultural water use and increase water for industrial and urban use, for local development and own family’s long term livelihoods. Most of them want to enter city as wage labor or run business or services of eating, etc. More want “with whole family” than “individually”. Most of them want continuing their land use right as living guarantee and no one want to return it to the collective. Therefore, the long term goals of the project and local government in the plan and development in such a direction are accordant with the willingness of the majority farmers. However, the government should cautiously deal with the land use right of the farmers and respect their desires.

3.2.4 The results of community consultation for the involuntary resettlement by Ertanggou reservoir and the possible negative effects by Meiyaogou reservoir

About the consultation with the involuntary resettlement of Entanggou Reservoir submerging area. The affected villagers of Tunaimaili Villagers’ Group, Qialekan Village of Shengjin Township in Turfan City all agreed upon the resettlement, and considered that there is canal in the new settlement to use surface water, and also Kariz; the land is flat and convenient for construction of houses and schools, the road is also convenient; there is also mosque in the nearby village. If it was resettled in the original village in Shengjin Township there would be no water source, the topography poor and transportation not convenient.

Besides the houses, land, fruit trees, trees, etc. to be submerged should be compensated according to the national policies’ stipulation, there will be no path for livestock to move to the other seasonal pastures, due to the submerging. The mountain could be climbed but the topography is too sloppy and difficult to cross through. Although grass could be grown in the new settlement for stall feeding, they have too many livestock (the main income source, 60 – 70% of the total) for that. The livestock could be stall-fed in winter of Nov. to Feb. but have to be grazed on their pastures in the other seasons for rotational grazing. They wonder whether the project could build an animal path along the boarder of the reservoir. An interviewee of questionnaire also asked for solution for water, electricity, road, land, mosque and school in the new settlement.

About the consultation on the possible effects by construction of Meiyaogou Reservoir. The participants had no objection to the proposed location of the Dam – in the north of the village residence and upper reaches, which does not cause their residence and arable land submerged. However, they expressed following concerns
with the problems possibly happened during construction and the possible effects after that:

- During and after the construction, the leaked river or spring water might be reduced, affecting the irrigation of about 400 mu of river bank arable land;

- During the construction, the heavy lorries will destroy the road along the residence, which was built with the money own raised by the villagers and the government assistance, and may increase the accident of the elderly and children;

- The dam may have the hidden trouble of safety threatening the human life and agricultural production.

The measures and compensation suggested or asked for include:

- Measure the existing water volume and monitor it after the construction; if it is reduced, the Reservoir should compensate it with water supply;

- Repair the road if it is destroyed during construction; it is better to strengthen it in advance to make it able to bear the heavy lorries;

- Hire the labors and transportation devices of the village for the construction;

- The existing amount of water fee will not be increased after the construction;

- Prioritize their wills to use the reservoir to develop tourist after the construction;

- Hope the above wishes be responded before the construction and a written commitment is made for those promised. On these points, Turfan water resources bureau and its design institute provide special explanations on the relationships among the reservoir water resources, mountain springs and local canal irrigation, as well as the safety of the dams.

The women also asked for more support to channel lining and resolving the drinking water. The factories, staff and residents of Shen Hong Industry Group nearby also use the water of Meiyaogou River, which made the drinking water difficult; and hope it be solved with reservoir water.

3.2.5 The situation of EM communities’ participation, the constraints and solutions

The community consultation on the situation of EM communities’ participation, the constraints and solutions was conducted mainly through the household questionnaire.
Among the 70 interviewed households who answered about “whether or not participated in the irrigation project planning, construction, use and management”, 64.3% choose “in ditch maintenance”, 61.4% in “managing own field irrigation”, 58.6% “in the meeting to allocate labor input, 48.6% in “labor input”, 41.4% “in water use analysis and raise improvement requests”, 27.1% in raising water demand, 18.6% “in concrete planning”, 17.1% “in supervision of engineering materials and quality”, 14.3% “in exam and acceptation”. About “who participated”, husband 60%, wife 8.6%, the elder 7.1%, young people 10.0%.

About the assessment on the roles of the organization and individuals in irrigation project planning, construction and management”, 55 households ranked the villagers’ committee or cadre as the 1st, accounting 78.6%, and the comprehensive score was 1.2 (the mean of the total score of the importance, the 1st was 1 score, 2nd as 2 score, and so on, as less as more important); 5 selected the head of villagers’ group as the 1st, 7.1%, and score 2.4; 3 selected the irrigation management agents, 4.3%, and score 2.8; 1 selected the clan seniority, score 3.8; 2 selected the EM groups’ elderly, score 3.9; 1 selected the management committee of mosque, score 4.0; and no one selected the women cadre as the 1st, score 4.0.

On “whom to tell about the problems and disputes in irrigation water use”, 68.6% selected the village cadres, 10.0% selected the villagers’ group’s heads, 2.9% the irrigation agents and 1.4% WUA, 1.4% the irrigation management station. For “whether it could be solved satisfactory”, 75.7% answered “yes” and 11.4% “no”.

The above results showed that;

- The EM communities and farmers have a certain degree of custom or tradition to participate in the discussions on the community’s affairs or issues. However, the higher level and comprehensive participation in planning, management, supervision, etc. was not enough and there is lack of the corresponding organizations and regulations.

- In the organization and management of infrastructure development, O&M and dealing with the water use disputes in the project areas, the Villagers’ Committee and cadres played the major roles, and the heads of villagers’ groups and irrigation agents also played important roles. On the other hand, the positive functions of the clan seniority, EM groups’ elderly and the management committee of mosque should also be paid attention to. In particular, the roles of women cadres in mobilization of women’s participation and protecting their rights and interest should be put into full function.

- The existing leaders and cadres in most of the villages could basically resolve the conflicts or disputes among the communities and farm households. But in a few villages it could not, esp. where the big households contracted extraordinarily
more land. It showed the necessity to develop the new organizational and managerial mechanism, i.e. WUA and to conduct the training on social equity awareness.

The results of the answers to the questions about the Water Users Association (WUA) showed that:

- Most of the survey villages had not yet established WUAs, however, quite a lot of interviewed households knew about WUA;

- The things the households would like WUA to do are mainly those that the existing village leaders and cadres are doing in irrigation management. They have not been aware enough of the necessities of comprehensive and deeper participation such as in the project planning or designing, supervision and inspection and then reception of the engineer works, pricing of water fees, etc., which are exactly the areas where WUA should play the roles.

- Quite a lot of households consider it necessary to reinforce the representativeness of the EM groups, the poor and women among the members of consultation, which provided the foundation to the later designing of the framework and mechanism of participation and consultation.

3.4 The conclusions of EM community consultation

1) The framework and methodology of EM community consultation were effective. Through the consultation, the leaders and farmers of the EM communities got known of the project objectives and components and, at the same times, analyzed the problems in irrigation, the causes and countermeasures, expressed their concerns with the protection of own interests and adaption of the project activities to local realities, and proposed corresponding countermeasures and suggestions. It has made consequently the proposed project gain the understanding and supports of the EM communities.

2) There is obvious social inequity in irrigation water use in Turfan Prefecture, causing the disparities, together with some other reasons, among the communities and farm households in the cropping patterns, yield and income. Generally, the communities and households who are able to use the surface water and/or use it more, are capable to grow the high-profitable cash crops such as grapes, melons, etc. and/or grow them more. The underground water wells are just secondarily important to resist drought seasonally, which resulted in the comparatively low costs for growing. Therefore, those communities and households have higher income and profitability. While those who are not able to use the surface water and/or use it less, are not capable to grow or grow less grapes and melons, and have to depend on deep wells, leading high costs and low profitability. Therefore, they got less or comparatively lower income.
Besides the constraints of irrigation infrastructure conditions and investment fund, such disparities are caused also by the deficit of the development and project planners and managers in the awareness on social equity and justice and the concrete methodologies to implement the concepts. The concerned institutes and staffs have not been able to pay enough attention to the problems of the communities and farm households in the lower reaches and channel tails not being able to use surface water; and prevent those capable communities and farmers from reclamation of non-agricultural land and drilling wells in great amount. There were no organizations and regulations in the irrigation district, esp. among the villages and groups and within the communities to equally distribute and manage the use of surface water. The water use of the urban and industrial enterprises, oil field has increased greatly, but the affected rural communities and households have not been informed and consulted with, and properly compensated.

3) The EM communities and farmers in the project areas understood the necessities to stop land reclamation and drilling wells, and develop water-saving agriculture and the general trend to increase the urban and industrial water use. After the irrigation infrastructures are improved and their water demand justly met, they understand and support the policies and measures to close some wells in the areas with too many and densely distributed wells, stop the high water demand grain crop of wheat, and rationally and properly increase water fee. Some of them are willing to enter city and towns for livelihoods, however, they would not like to give up their land use right.

4) The construction of Ertanggou and Meiyaogou Reservoirs would bring some negative effects on the livelihoods of the communities concerned. The participants there raised the concerns with their interests during the consultation, but also identified the necessity and importance of the reservoirs to the agriculture and urban and industrial development in the whole Turfan Prefecture.

5) Compared with the Han residences, the EM groups in the project areas have the cultural traditions to participate in the community affairs and express own needs and opinions. However, there is no mechanism to effectively protect the interests and rights of the poorer communities, the poor and women.

6) The existing organizations and leaders/cadres of most of the survey villages play important roles in the irrigation and engineer management. However, they also considered the necessity to organize and operate WUAs, taking them as the center, in order to have the communities and farmers more comprehensively and deeply participate in the whole process of irrigation management. However, they don’t have the knowledge and skills related to WUA development.
7) The EM communities and farmers in the project areas have the ability or potentials to apply the participatory methods and tools to analyze the situation and problems in irrigation water use, the causes and countermeasures, by themselves. Through such a process, they will change themselves from “being asked to do it” to “doing it with own initiatives”. Therefore, it is very necessary and possible for the project to continue using the participatory approach and methodologies in project planning, operational plan, implementation, quality supervision, exam and acceptance of engineers, the management, O&M, WUAs’ organization and operation, project M&E, etc.

4 The Logframe of EMDP of Turfan Water Saving Irrigation Project in social aspects

Based on the causal diagram of the problems in agricultural irrigation water use in Turfan Prefecture, and the causes and social impacts (see Section 3) as well as the results of EM community consultations and discussions on the problems or negative impacts possibly brought about by the project activities during and after the implementation, and the countermeasures, the consultant drafted the following Logframe of EMDP of Xinjiang/Turfan Water Saving Irrigation Project in social aspects with the method of Objective-Oriented Project Planning (see the next page).

**The Long-term goals of the project in the social aspects could be suggested as:**
The equity in irrigation water use will have been realized, the EM communities and farm households, esp. the poorer ones become able to develop the water saving and high profitable agriculture, increase incomes, and get rid of the poverty caused by water deficit, and the wealth disparity among the communities and farm households shortened. The indicators such as the per capita annual net income, amount and % of poverty villages and poor households, the satisfactory degree of farmers with water use, in project villages, could be objectively verified with the statistic data, sample investigation, Participatory impact assessment, etc.
<table>
<thead>
<tr>
<th>Long-term goals</th>
<th>Objectives and activities</th>
<th>Objectively verifiable indicators</th>
<th>Verification methods</th>
<th>Important assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The equity in irrigation water use will have been realized, the EM communities and farm households, esp. the poorer ones become able to develop the water saving and high profitable agriculture, increase incomes, and get rid of the poverty caused by water deficit, and the wealth disparity among the communities and farm households shortened.</td>
<td>Per capita annual net income, amount and % of poverty villages and poor households, the satisfactory degree of farmers with water use, in project villages</td>
<td>Statistic data, Sample investigation, Participatory impact assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purposes of project phase</td>
<td>The demand for irrigation water use of the project townships, villages and farm households will have basically met.</td>
<td>Water use situation of the villages and households (volume, time)</td>
<td>Record of water supply, participatory M&amp;E</td>
<td></td>
</tr>
<tr>
<td>Outputs to reach the purposes</td>
<td>The demand for irrigation water use of the project townships, villages and farm households will have basically met.</td>
<td>Surface water use situation of lower reach and channel tail communities, reduction of underground well use, use and maintenance of Kariz, irrigation water and soil quality in heavy alkali area of Turfan City, participation and getting benefited by the poor communities, households and women</td>
<td>Investigation, statistics, records of water resource bureau; report forms of project villages; participatory project M&amp;E, and Impact Assessment</td>
<td></td>
</tr>
<tr>
<td>Project activities to gain the outputs</td>
<td>1. The EM communities in lower reaches and at channel tails could use surface; the volume and timing basically met the demand; and the water fee become rational and acceptable.</td>
<td>Inputs and costs</td>
<td>Technical training, information and marketing services</td>
<td></td>
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<tr>
<td></td>
<td>2. The dependence on underground water wells was reduced, costs rational, and profitability increased.</td>
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<td></td>
<td>3. In the village with Kariz restoration project, the degree for Kariz to meet the demand for irrigation and drinking water was increased, and the physical cultural heritage protected and used soundly.</td>
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<td></td>
<td>4. The problems of south lowland of Turfan City in irrigation water quality and salina soil were resolved basically.</td>
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<tr>
<td></td>
<td>5. EM communities and farmers equally participated in project planning and implementation, and benefited.</td>
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<tr>
<td></td>
<td>1.1 Construct the water reservoirs of Meiyaogou, Ertanggou and Alagou, to store and regulate floodwater; rationally compensate and allocate the involved involuntary resettled households;</td>
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<tr>
<td></td>
<td>1.2 Line the main, branch and sub-branch canals, and support the communities lining the distributaries and field channels within the ability;</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>1.3 Build the field irrigation ditches and devices, level the land and make it into small plots for irrigation;</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>1.4 Continue strictly the implementation of the policies and measures to stop land reclamation, and shit crop cultivation into forest and grassland development, guide the farmers adjust the cropping patterns, to develop the water saving and high profitable crops, and fruit or ecological-use trees.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.1 Apply the Integrated Water Management (IWM) approach, to adjust the distribution of underground water wells, pay attention to the rational needs to drill wells by the poverty communities with irrigation water deficit, and close some wells in the areas with too many and densely distributed wells;

2.2 Having adapted to local situation, to apply the water saving technologies, e.g. drip irrigation and low pressure pipes

2.3 Based on water saving and guarantee the agricultural water use of EM communities and farmers, gradually increase the portion of industry and urban water use, and avoid potentially adverse effects on the EM communities or mitigate and compensate for such effects.

3.1 Restore Kariz in the villages with such activities;

3.2 Formulate the long-term and effective measures and regulations for Kariz maintenance and operation, and develop the corresponding management organizations.

4.1 Extend the main and branch canal lining to the townships and villages in the south lowland of Turfan City, for them to use the surface water.

4.2 Support the concerned EM communities rationally, effectively and sustainably drill and use limited number of deep wells;

4.3 Grow the drought-resisted plants such as Saxoul, to increase the vegetation coverage of salina land.

5.1 Provide training on the awareness of social equity and pro-poor, and the approach and methodologies of Participatory planning, implementation, management, M&E to the leaders and staffs of PMO and relevant agencies;

5.2 Provide training on the concepts of equity, participation and democratic rights and the implementation and exertion methods to the leaders and farmers’ representatives (with enough the poor and women);

5.3 Make pilots in the project townships and villages, and then disseminate and establish WUAs, to guarantee EM communities and farmer equally participate in project planning, designing, implementation, supervision over the quality of the engineer works, inspect and then accept them, O&M, and M&E;

5.4 Establish the procedures and mechanism of the grievances on water use and the response among the water resource administration institute, irrigation suppliers and EM communities and WUAs.

| Consultant and training on IWM, needs assessment of the poor communities |
| Participatory project planning, operational plans |
| Consultant, training, field survey |
| Training, community mobilization |
| Consultant, needs assessment of the poor communities |
| Consultant and training on participatory poverty reduction and WUA |
| Consultant and training on participatory poverty reduction and WUA |
| Consultant, costs of Demo-WUAs’ establishment, operation and participatory management, field visits and training |
| Consultant, costs of the relevant meetings and mechanism’s operation |
The purposes of project phase could be suggested as: The demand for irrigation water use of the project townships, villages and farm households will have basically met. The indicators of water use situation of the villages and households (volume, time) could be objectively verified with the record of water supply, participatory M&E, etc.

The outputs to reach the purposes include five aspects of surface water use, underground water wells, Kariz, the heavy kaline of the south lowland in Turfan City, and the participation of EM communities:

1. The EM communities in lower reaches and at channel tails could use surface; the volume and timing basically met the demand; and the water fee become rational and acceptable.

2. The dependence on underground water wells was reduced, costs rational, and profitability increased.

3. In the village with Kariz restoration project, the degree for Kariz to meet the demand for irrigation and drinking water was increased, and the physical cultural heritage protected and used soundly.

4. The problems of south lowland of Turfan City in irrigation water quality and salina soil were resolved basically.

5. EM communities and farmers equally participated in project planning and implementation, and benefited.

The indicators of the surface water use situation of lower reache and channel tail communities, reduction of underground well use, use and maintenance of Kariz, irrigation water and soil quality in heavy alkali area of Turfan City, participation and getting benefited by the poor communities, households and women, etc. could be verified objectively with the investigation, statistics, records of water resource bureau; report forms of project villages; participatory project M&E, and Impact Assessment.

Project activities to gain the outputs. It includes in the aspect of surface water use:

- Construct the water reservoirs of Meiyaogou, Ertanggou and Alagou, to store and regulate floodwater; rationally compensate and allocate the involved involuntary resettled households;

- Line the main, branch and sub-branch canals, and support the communities lining the distributaries and field channels within the ability;
- Build the field irrigation ditches and devices, level the land and make it into small plots for irrigation;

- Continue strictly the implementation of the policies and measures to stop land reclamation, and shift crop cultivation into forest and grassland development, guide the farmers adjust the cropping patterns, to develop the water saving and high profitable crops, and fruit or ecological-use trees.

It includes in the aspect of underground water wells:

- Apply the Integrated Water Management (IWM) approach, to adjust the distribution of underground water wells, pay attention to the rational needs to drill wells by the poverty communities with irrigation water deficit, and close some wells in the areas with too many and densely distributed wells;

- Having adapted to local situation, to apply the water saving technologies, e.g. drip irrigation and low pressure pipes

- Based on water saving and guarantee the agricultural water use of EM communities and farmers, gradually increase the portion of industry and urban water use, and avoid potentially adverse effects on the EM communities or mitigate and compensate for such effects.

In the aspect of Kariz, it includes:

- Restore Kariz in the villages with such activities;

- Formulate the long-term and effective measures and regulations for Kariz maintenance and operation, and develop the corresponding management organizations.

In the aspect of the heavy kaline of the south lowland in Turfan City, it includes:

- Extend the main and branch canal lining to the townships and villages in the south lowland of Turfan City, for them to use the surface water.

- Support the concerned EM communities rationally, effectively and sustainably drill and use limited number of deep wells;

- Grow the drought-resisted plants such as Saxoul, to increase the vegetation coverage of salina land.

In the aspect of the participation of EM communities, it includes:
- Provide training on the awareness of social equity and pro-poor, and the approach and methodologies of Participatory planning, implementation, management, M&E to the leaders and staffs of PMO and relevant agencies;

- Provide training on the concepts of equity, participation and democratic rights and the implementation and exertion methods to the leaders and farmers’ representatives (with enough the poor and women);

- Make pilots in the project townships and villages, and then disseminate and establish WUAs, to guarantee EM communities and farmer equally participate in project planning, designing, implementation, supervision over the quality of the engineer works, inspect and then accept them, O&M, and M&E;

- Establish the procedures and mechanism of the grievances on water use and the response among the water resource administration institute, irrigation suppliers and EM communities and WUAs.

The corresponding inputs and costs include: For “farmers to adjust the cropping patterns”, it needs the technical training, information and marketing services; for “the application of IWM approach and just adjustment of underground water wells’ distribution”, it needs the consultant and training on IWM, needs assessment of the poor communities; for “adapting to local situation and develop water saving irrigation”, it needs the Participatory project planning and operational planning; for “avoiding or mitigating potentially adverse effects of industrial and urban water use increase on the EM communities”, it needs the consultant, training and field survey; for “formulating the measures and regulations for Kariz O&M and developing the corresponding management organizations”, it needs training, community mobilization; for “supporting the poor EM communities with heavy saline rationally, effectively and sustainably drill and use deep wells”, it needs the consultant, needs assessment of the poor communities; for “the training on Participatory concepts and methods to the leaders and staffs of PMO and relevant agencies as well as EM communities’ leaders and farmers”, it needs the consultant and training on participatory poverty reduction and WUA; for “the pilots, dissemination and establishment of WUAs, to guarantee the equal participation of EM communities and farmer”, it needs the consultant, costs of Demo-WUAs’ establishment, operation and participatory management, field visits and training; and for “the establishment of the procedures and mechanism of the grievances on water use and the response”, it needs the consultant, costs of the relevant meetings and mechanism’s operation.

5 The framework for ensuring extensive consultation and informed participation of local EMG during project implementation

According to the above results of SA and EM community consultation, the framework should consist of the organization structure, regulations and norms, actual operation and supervision or M&E:
5.1 Organizational structures

The organizational structure of the framework at the community level could be suggested as the organization of WUAs or strengthening the social equality of the existing organizational structure of the villages, to ensure the informed participation and extensive consultation of EM groups in project planning, implementation and irrigation systems’ use and management, and exertion of the rights endorsed by the central government of being informed, participation, expression of own needs and opinions, decision-making, supervision, etc. Therefore, the following framework and procedures are proposed:

- The hydrological boundaries of irrigation systems in the project areas are basically accordance to the ones of administration villages. Therefore, it is suggested that WUA is organized with the village as the unit, dividing into four levels of water users’ group, water users’ representative meeting, convention of all water users, and WUA executive.

- The water users’ group is organized taking the villagers’ group as the unit, for the participation, consultation and management of irrigation works’ construction, use and maintenance, and irrigation delivery within the group. After the classification of farm households of the group, allocate the quota of the representatives to each EM group, the poor households and the other ones, according to the ratio of 5 (for the village with less than 300 households) – 7 (for the village with more than 300 households) to 1; among it women should be 30%, and the EM group with less than 5 – 7 households have at least one quota. Then, the poor households, the others and women of the EM groups elect own representatives respectively, to represent them exerting their democratic rights in the organization and operation of WUA; the existing villagers’ representatives will become the water users’ representatives directly without needs to be elected again, and occupy the quota of own EM group, household’s type and gender.

If adopting the method to strengthen the equality of existing structure, it is necessary to enlarge the representativeness of the existing villagers’ representative meeting system, to make its composition in accordance with the household proportion of each EM group, the poor villagers’ group and households, and increase the one of women. The concrete operation of it is the same as the method of water users’ representatives.

- The water users’ representative meeting or the enlarged villagers’ representative meeting is the institute of consultation on WUA’s establishment and operation or village development, to discuss and nominate the candidates of WUA executive or village project management group and supervision group; draft the schemes, through discussion and consultation, for WUA constitutions and regulations, planning, implementation and management of the project components in the village, the use and maintenance of the irrigation system, and irrigation.
management and water use planning, reach the consensus and propose them to the
convention of water users or all villagers.

- The convention is the top institute of decision making, to elect WUA executives
or project management group members, and members of supervision group;
discuss, revise and approve the schemes proposed by the representative meetings;
hearing the annual work report and next year’s plan, water use plan of the
executive or management group and report of supervision group. In the villages
where the villagers residing scatteredly and it is not feasible to held the
convention, or the majority of villagers endorse the right, the representative
meetings could play the functions of the convention.

- WUA executive or project management group is responsible for the organization
and implementation of the project activities in the village, implementation of the
regulations of irrigation management and engineering works’ maintenance,
coordinate the irrigation water distribution and possible disputes in water use
among the water users’ or villagers’ groups. It is not appropriate to have the
member of the executive or management group exceed 3 – 5 people, to reduce the
costs of compensation and leave the main portion for the staffs who do the actual
field irrigation management such as the irrigation management agents. Because
the project take the community as the whole scope, i.e. needing all the villagers
participate and equally benefited, the main leaders of village party branch and
villagers’ committee who take the responsibility for the project should enter the
executive or management group directly without need to be elected, and lead the
work, to avoid forming two leadership centers in one community. The other
executive or group members and the members of supervision group should be
elected by the convention or representative meeting. The supervision members
should have no direct relative relation with the executive or group members in
order to perform well the supervision.

- The responsibilities of the village party branch and villagers’ committee include:
With the assistance of PMO, make the analyses of differentiations among the
villagers’ groups and farm households, organize the representatives from every
types analyzing the problems in irrigation water use and the countermeasures,
participating in the project activities’ planning and designing; mobilize and
organize every villagers’ groups electing the water users’ representatives or the
members of enlarged villagers’ representative meeting, prepare the establishment
and convene the representative meeting and whole water users or villagers’
convention; after WUA or project management group are organized, besides the
main leaders enter the institute and lead the work, the party branch and villagers’
committee continue supporting the work of WUA or project management group,
coordinate the above-low and internal-external relationships, and make the
necessary supervision, but not displace WUA executive or project management
group on the responsibilities.
- During the processes of consultation, organization and implementation, O&M, dispute resolving, the roles of clan seniority, EM groups’ elder, the management committee of mosque and the old party members and cadres need to be played, to support the development and operation of WUA or project management and supervision groups; at the same times the young people should be encouraged to participate in WUA’s development and project planning, implementation and management.

- When several WUAs locate along a canal or main sub-canal and form an upper and lower reaches relation, the WUA Federation should be organized among the WUAs when the conditions are ready, to bargain on the irrigation sequence and volume, coordinate the mutual relations and mediate the possible dispute. The number of the Federation leaders should not exceed 3 – 5 people. The quota are allocated to the concerned WUA and have it to elect own Federation member. Where there is not yet WUA established, a joint conference system needs to be established among the concerned project villages to exert the functions of the Federation.

5.2 Regulations and norms of consultation

- The constitutions of WUA and Federation should stipulate the articles to ensure the above mentioned concerns with the inclusion and proportion of EM groups, the poor villagers’ groups and households, and women in the water users’ representatives.

- The process of the consultation and decision-making on WUA or project needs the formulation of the concrete regulations and norms, such as the group discussions by the poor and women’s representatives separately, than plenary communication to reach the consensus, to ensure the rights of EM groups, the poor villagers’ groups and households and women to participate, be informed, expression of own needs and opinions, etc. and getting benefited equally, and for them to participate in the whole process of WUA’s development and project planning, implementation, management and M&E.

5.3 Actual operation

PMO staff should apply the Participatory methods and tools to:

- Assist the village/villagers’ group leaders to identify the residence distribution of EM groups, the differences among the villagers’ groups and farm households, moderate the discussions of the representatives, esp. of the poorer communities, the poor and women on the problems in irrigation water use and the causes and countermeasures, for them to understand the necessities to implement the project components and organize WUA, analyze the effects of the components, esp. the negative ones, and the problems possibly happened during implementation, and
identify the measures to avoid or mitigate the negative effects and possible problems; concretely plan and design the project components of the village, according to the actual situations and conditions, and farmers’ needs and desires, and work out the operational plan of the project.

- Facilitate the organization and election processes of the water users’ groups, representative meeting, and WUA executive or the enlarged villagers representative meeting, to ensure the realization of the articles of WUA constitution and project regulations on the representativeness of EM groups, the poor communities and households, and women.

- Assist WOA and Federation or project management groups and joint conferences of the villages to formulate the management regulations of irrigation, engineering works and finance, and work out the plans of maintenance and water use, among which, particular attentions should be paid to the rights of EM groups, poorer communities and households, and women to equally participate, being consulted and benefited; ensure them expressing the problems and difficulties in water use and allocation, maintenance of field engineering devices, share the water fee, etc., and rational request, opinions and suggestions; resolve the possible conflicts in water use among WUAs or water users’ groups.

- To make training and capacity building for the male and female water users, their representatives and WUA or project management group leaders and supervision group memebers, esp. to strengthen the WUA leaders and relevant persons’ abilities of listening to, and communicate with, and the awareness on the equity among ethnic groups, social justice and pro-poor, etc.

- During the field work, the local EM group’s languages and characters must be used, to have the communities and farmers hold the ownership and accountability over the results of the discussions, analyses, planning and decision-making and the constitutions and regulations formulated.

5.4 Supervision and M&E

- Elect the supervision groups at the same time as the election of WUA leaders or project management group members. If there is the supervision institute such as the democratic financial management team in the village, the team members should be included into the group, and the supervision regulations should be formulated accordingly.

- At the end of each year or combined with the project implementation cycle, periodically conduct the Participatory M&E to the project, having the beneficiaries, esp. the water users’ representatives or enlarged meeting members compare and examine the M&E indicators with baseline data and information.
6 The action plan of measures to ensure that local EM groups receive social and economic benefits from the project, which are culturally appropriate, and to avoid or mitigate the adverse impacts if identified during the SA

According to the recommendations drawn from the conclusions of SA and EM community consultation, the following action plan is proposed:

1) Through training and workshops, strengthen the awareness of development and project planners and managers on social equity and pro-poor, have them master the methodologies to concretely realize those concepts through operation, make the necessary adjustment of the project components’ distribution, and cooperate with the other projects of the project counties/city and townships, to have as many EM communities and farm households as possible able to use the surface water for irrigation.

2) Considering the difficulties of the project communities to raise own fund and the necessity of the field ditch development, besides the lining of the main, branch and sub-branch canals, the project should cooperate with the other project of the counties and townships to support the communities lining the distributaries and field channels within the ability.

3) The project counties/city and townships should support the project villages, through the other channel, to build the field irrigation ditches and devices, level the land, change the flooding irrigation into small plots irrigation, to reduce the waste of water and increase the efficiency of water use.

4) Continue strictly the implementation of the policies and measures to stop land reclamation, and shift crop cultivation into forest and grassland development, guide the farmers adjust the cropping patterns, to develop the water saving and high profitable crops, and fruit or ecological-use trees.

5) Apply the Integrated Water Management (IWM) approach, to adjust the distribution of underground water wells, strictly control drilling new wells and close some wells in the areas with too many and densely distributed wells, at the same times, pay attention to the rational needs to drill wells by the poverty communities with irrigation water deficit, avoiding imposing uniformity in all cases.

6) Through the trials and demonstration of the engineer and techniques and the participation of farmers in the option selection and project activity planning, have the water saving technologies of drip irrigation and low pressure pipes adapting to local situation and farmers’ willingness.
7) Based on water saving and guarantee the agricultural water use of EM communities and farmers, gradually increase the portion of industry and urban water use, and conduct the free, prior, and informed consultation in the affected EM communities, to identify the countermeasures to avoid potentially adverse effects or mitigate and compensate for such effects according to the national relevant policies.

8) Integrated with the development strategies and industrial structure of Turfan Prefecture and the project counties/city, provide the training on the proper techniques and skills, and urban living, Han Chinese language, etc., funds for initiating enterprises, and the other encourage and preferential policies as well as the employment information services to the EM farmers and herders who want to develop in the urban areas. At the same times, really protect their rights of contracted arable land use and deposition, according to the central government policies.

9) Formulate the long-term and effective measures and regulations for Kariz maintenance and operation, and develop the corresponding management organizations.

10) At the same time as the implementation of the compensation and settlement of the migrants, try as much as possible to consider the rational request of Ertanggou Reservoir’ resettled herder households for leaving the road for the seasonal rotation of their livestock, and the one of Meiyaogou Village for guarantee the irrigation water use, protection the road they built, and use of reservoir to develop tourism in future, to mitigate the negative effects and develop the other livelihoods.

11) Extend the main and branch canal lining to the townships and villages in the south lowland of Turfan City, for them to use the surface water; support the concerned EM communities rationally, effectively and sustainably drill and use limited number of deep wells, under the pre-conditions that their water demand could not be met with the other measures such ecological resettlement of some households; grow the drought-resisted plants such as Saxoul, to increase the vegetation coverage of salina land.

12) Provide training on the concepts of equity, participation and democratic rights and the implementation and exertion methods to the leaders and farmers’ representatives (with enough the poor and women). On the base of existing villagers’ representative meeting, increase the proportion of representatives of the poorer communities, EM group with less population, the poor and women, to make it in accordance to their proportion of households and population, to ensure them exert their rights and equally participate and getting benefited.
13) Make pilots in the project townships and villages, and then disseminate and establish WUAs, to guarantee EM communities and farmer equally participate in project planning, designing, implementation, supervision over the quality of the engineer works, inspect and then accept them, O&M, and M&E;

14) Establish the procedures and mechanism of the grievances on water use and the response among the water resource administration institute, irrigation suppliers and EM communities and WUAs.

7 The costs estimated for the measures and actions designed in the EMDP, in consideration of combination with the project activities

According to the “Project activities to gain the outputs” within the Logframe of EMDP of Xinjiang/Turfan Water Saving Irrigation Project in social aspects, the costs could be estimated with the following table.

The costs estimated for the measures and actions designed in the EMDP

Table 7

<table>
<thead>
<tr>
<th>Project activities to gain the outputs</th>
<th>Inputs</th>
<th>Person time /month</th>
<th>Costs (Yuan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide training on the awareness of social equity and pro-poor, and the approach and methodologies of Participatory planning, implementation, management, M&amp;E to the leaders and staffs of PMO and relevant agencies</td>
<td>Consultant and training on participatory poverty reduction and WUA</td>
<td>60</td>
<td>60000</td>
</tr>
<tr>
<td>Provide training on the concepts of equity, participation and democratic rights and the implementation and exertion methods to the leaders and farmers’ representatives (with enough the poor and women)</td>
<td>Consultant and training on participatory poverty reduction and WUA</td>
<td>60</td>
<td>60000</td>
</tr>
<tr>
<td>Make pilots in project areas, and then disseminate and establish WUAs, to guarantee EM communities and farmer equally participate in the whole process of project and getting benefited</td>
<td>Consultant, Demo-WUAs’ establishment, operation and participatory management, field visits and training</td>
<td>200</td>
<td>200000</td>
</tr>
<tr>
<td>Guide the farmers adjust the cropping patterns, to develop the water saving and high profitable crops, and fruit or ecological-use trees</td>
<td>Technical training, information and marketing services</td>
<td>200</td>
<td>100000</td>
</tr>
<tr>
<td>Having adapted to local situation, apply the water saving technologies, e.g. drip irrigation and low pressure pipes</td>
<td>Participatory project planning, operational plans</td>
<td>60</td>
<td>100000</td>
</tr>
<tr>
<td>Apply IWM approach, to adjust the distribution of underground water wells, pay attention to the rational needs to drill wells by the poor communities with irrigation water deficit, and close some wells in the areas with too many and densely distributed wells</td>
<td>Consultant and training on IWM, needs assessment of the poor communities</td>
<td>60</td>
<td>50000</td>
</tr>
<tr>
<td>Save water and guarantee the agricultural water use, gradually increase the portion of industry and urban water use, and avoid potentially adverse effects on the EM communities or mitigate and compensate for such effects</td>
<td>Consultant, training, field survey</td>
<td>60</td>
<td>50000</td>
</tr>
<tr>
<td>Formulate the long-term and effective measures and regulations for Kariz maintenance and operation, and develop the corresponding management organizations</td>
<td>Consultant, training, community mobilization, organization development</td>
<td>30</td>
<td>50000</td>
</tr>
</tbody>
</table>
Support the EM communities with heavy saline and water deficit rationally, effectively and sustainably drill and use limited number of deep wells

| Support the EM communities with heavy saline and water deficit rationally, effectively and sustainably drill and use limited number of deep wells | Consultant, needs assessment of the poor communities | 30 | 50000 |

Establish procedures and mechanism of grievances on water use and response among water resource bureaus, irrigation suppliers and EM communities and WUAs

| Establish procedures and mechanism of grievances on water use and response among water resource bureaus, irrigation suppliers and EM communities and WUAs | Consultant, costs of the relevant meetings and mechanism’s operation | 30 | 50000 |

All these consulting and training costs listed in table 7 are budgeted to the project’s component 1, Integrated Basin Management Establishment with a budget of $1.41 million (about ¥9.50 million), and component 5, Institutional Development and Capacity Building with a budget of $2.13 million (about ¥14 million). Besides, all the project activities on highly efficient water saving irrigation are also especially designed for and distributed among the ethnic minority areas (townships and communities), as shown in tables 8, 9 and 10.

First of all, the establishment of high efficient water saving irrigation under the project is planned with a focus on drip irrigation facilities covering 10,763 ha. of which 4,016 ha. are in Turfan city, 3,338 ha. in Shanshan county, and 3,408 ha. in Tukson county. As described in the previous chapters, ethnic minority populations account for 89.5% of the local total in the rural areas of the three counties/city, and Uygur 83.6%. Therefore, all these project drip irrigation facilities would be established in the ethnic and Uygur communities as shown in table 8.

### The Project Drip Irrigation Facilities Distribution Areas

#### Table 8

<table>
<thead>
<tr>
<th>Turfan City</th>
<th>Shanshan County</th>
<th>Tukson County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Townships</td>
<td>Townships</td>
<td>Townships</td>
</tr>
<tr>
<td>Area (ha.)</td>
<td>Area (ha.)</td>
<td>Area (ha.)</td>
</tr>
<tr>
<td>Yaer</td>
<td>Qiiktai</td>
<td>Xia</td>
</tr>
<tr>
<td>667</td>
<td>481</td>
<td>348</td>
</tr>
<tr>
<td>Aitin Lake</td>
<td>Tuyugou</td>
<td>Yilahu</td>
</tr>
<tr>
<td>333.34</td>
<td>667</td>
<td>1040</td>
</tr>
<tr>
<td>Qiatgerler</td>
<td>Lukxin</td>
<td>Bostan</td>
</tr>
<tr>
<td>1000</td>
<td>557</td>
<td>993.6</td>
</tr>
<tr>
<td>Erbo</td>
<td>Dikaner</td>
<td>Guolobuyi</td>
</tr>
<tr>
<td>1004</td>
<td>474</td>
<td>1027.1</td>
</tr>
<tr>
<td>Sabo</td>
<td>Lianmuxin</td>
<td></td>
</tr>
<tr>
<td>1012.27</td>
<td>133.3</td>
<td></td>
</tr>
<tr>
<td>Dalangkan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dongbazha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bizhan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chengzhen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>City total: 4016.27</td>
<td>County total: 3338</td>
<td>County total: 3408.7</td>
</tr>
</tbody>
</table>
Secondly, the project has also canal lining activities in order to improve local canal systems for the broad fields which have run for many years and been seriously damaged. The project plans to improve or/and construct a total of 47.5 km canals, of which 23 km will be in Turfan city, 18 km in Shanshan county and 6.5 km in Tukson county, as shown in table 9. The total budgets for the project investments are indicated in table 10. On the whole, it is obvious that all these project activities are closely linked to development of the irrigated agriculture of local ethnic minority communities, and the EMDP helps make sure about the best ways to carry out the project activities as local ethnic minority communities wish, in which they would be able to benefit to the maximum.

<table>
<thead>
<tr>
<th>County/City</th>
<th>Canal Names</th>
<th>Locations</th>
<th>Nature</th>
<th>Flow discharge (m³/s)</th>
<th>Length (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project area in total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>47.5</td>
</tr>
<tr>
<td>Turfan city</td>
<td>Tarlang Main Canal</td>
<td>Northern Turfan city</td>
<td>New</td>
<td>2.0</td>
<td>23.0</td>
</tr>
<tr>
<td></td>
<td>To Renmin Canal</td>
<td></td>
<td>Improvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shanshan County</td>
<td>Kekeya Branch</td>
<td>Kekeya watershed</td>
<td>Improvement</td>
<td>3.8</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td>Kerqi Branch</td>
<td>Kekeya watershed</td>
<td>Improvement</td>
<td>1.5</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>Ertang Branch</td>
<td>Ertan watershed</td>
<td>Improvement</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Shanshan in total</td>
<td></td>
<td></td>
<td>Improvement</td>
<td></td>
<td>18.0</td>
</tr>
<tr>
<td>Tukson county</td>
<td>Alagou Main Canal</td>
<td>North-west Tukson</td>
<td>Improvement</td>
<td>10</td>
<td>6.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Investment Name</th>
<th>Total(including contingent fee) CNY10³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Saving Irrigation</td>
<td>266557.236 ($40.33mil)</td>
</tr>
<tr>
<td>2009</td>
<td>148867.84 ($22.2mil)</td>
</tr>
<tr>
<td>2010</td>
<td>117689.387 ($18.1mil)</td>
</tr>
<tr>
<td>2011</td>
<td>0</td>
</tr>
<tr>
<td>2012</td>
<td>0</td>
</tr>
<tr>
<td>2013</td>
<td>0</td>
</tr>
</tbody>
</table>
8 Mechanism of the project for EM communities to express opinions and grievances caused by project implementation

- PMO publicize the objectives and contents of the project, in the project areas, townships and villages, and the proposals for the activities, e.g. the technologies for water-saving, acreage of the activities, timing, locations of the reservoir dams, whether a path for livestock to the seasonal grassland is built or not, etc. extensively ask for the opinions of EM communities and farmers, esp. the poorer communities and farm households, women, and make the necessary revision of the project plan.

- When the project makes the concrete planning, designing, reconnaissance, etc. in the villages, the Participatory planning approach and methodologies should be applied, to make them adapting to local conditions and farmers’ desires.

- In the project township, the joint conference systems should be established, participated in by the project management groups or WUAs’ leaders of the villages, and held the meeting periodically or aperiodically, according to the requirement of the project cycle and irrigation use and management phases, or the settlement of the emergency or disputes, to hear the opinions of every parties, discuss and consult on the solutions.

- PMO staffs and the project township government cadres timely find out and hear the opinions and requests of EM communities and farmers caused by the implementation of the project or the use of irrigation engineering, timely report them to PMO, township government or the other relevant agencies, and try to get resolution or response as soon as possible.

9 Mechanisms and benchmarks appropriate to the project for M&E and reporting on the implementation of the EMDP

It is suggested to apply the Participatory M&E approach and methodologies. Besides the periodic collection of the quantitative data related to the M&E indicators, have EM communities and farmers, esp. the enlarged villagers’ representative meeting members or water users’ representatives participate and conduct M&E and Impact Assessment with PRA methods and tools.

According to the results of SA, community consultation and household questionnaire interviews as well as the project’s EMDP in social aspects, the following M&E indicators and benchmarks are proposed and listed.
Table 9  M&E indicators and benchmarks for the project’s EMDP in social aspects

<table>
<thead>
<tr>
<th>M&amp;E indicators</th>
<th>Benchmarks</th>
<th>Key points for M&amp;E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surface water dominated mixed irrigation area with grape as the main crop</td>
<td>Underground water well or surface water dominated irrigation area with cotton inter- or single planting</td>
</tr>
<tr>
<td></td>
<td>Ya’er</td>
<td>Meiyao gou</td>
</tr>
<tr>
<td>Sown area of high profitable crop (%)</td>
<td>85.2</td>
<td>65.8 (Cotton inter- or single planting)</td>
</tr>
<tr>
<td>Primary irrigation type</td>
<td>Kariz</td>
<td>Surface water</td>
</tr>
<tr>
<td>Whether understand water fee increase and the fee rational</td>
<td>Understood: 53.3%; Did not understand: 46.7%</td>
<td>Whether portion of “understood” increased the portion considering fee rational</td>
</tr>
<tr>
<td>Whether understand reduce agric. water use and increase urban + industry use</td>
<td>Understood: 72.1%; Did not understand: 27.9%. About willingness to enter urban sector for development, “want”:80.8%, “don’t want”: 19.2%</td>
<td>Portion of understood and “want”</td>
</tr>
<tr>
<td>Participation in irrigation project planning, construction, use and management; the gender difference</td>
<td>In ditch maintenance: 64.3%, manage own irrigation: 61.4%, in meeting to allocate labor input: 58.6%, labor inputs: 48.6%, in water use analysis and raise improvement requests: 41.4%, raise water demand: 27.1%, in concrete planning: 18.6%, supervision of engineering materials and quality: 17.1%, in exam and acceptance: 14.3%. “Who participate”: husband 60%, wife 8.6%, the elder 7.1%, young people 10.0%.</td>
<td>Whether participation in the deep activities increased, the one of women increased</td>
</tr>
<tr>
<td>Assessment on roles of organization + person in irrigation project planning, construction, management (% of ranking as 1st and comprehensive score)</td>
<td>Villagers’ committee or cadre: 78.6%, score 1.2; head of villagers’ group: 7.1%, score 2.4; irrigation management agents: 4.3%, score 2.8; clan seniority 3.8; EM groups’ elderly 3.9; the management committee of mosque 4.0; women cadres 4.0</td>
<td>The changes in portion of ranking as 1st and comprehensive score, esp. of WUA and women cadres</td>
</tr>
<tr>
<td>Whom to tell about problems and disputes in irrigation, whether it could be resolved</td>
<td>Village cadres: 68.6%, villagers’ group’s heads: 10.0%, irrigation agents: 2.9%, WUA: 1.4%, management station: 1.4%; For “whether it could be solved satisfactory”, “yes” 75.7%, “no” 11.4%</td>
<td>Whether WUA’s role and portion of “can be solved” increased.</td>
</tr>
</tbody>
</table>