Improving water productivity at plot level in the Ferghana Valley (Kyrgyzstan, Tajikistan and Uzbekistan)

Kahramon Jumaboev, Senior Research Officer, IWMI-CA
Donor: SDC
Implementing: IWMI, SIC-ICWC, National partners;

Outline

- Introduction
- Main constraints to improve water productivity
- Goals and objectives
- Institutional structure
- Project interventions
- Main achievements
Area: 124,200 km²
Population: 11,342,000
Shared by: Kyrgyz republic (Osh, Jalabad, Batken), Tajikistan (Sogd) and Uzbekistan (Andijan, Ferghana and Namangan)

Rainfall during growing season in FV

Improved water and land resources management for food, livelihoods and nature
Why Water Productivity?

- Irrigated agriculture provides almost 90% of crop production and 88% of water used for irrigation.
- It is forecasted by 2020 CA population reach to 70 mln.
- More kilograms of agricultural production per unit of water delivered.

Constraints

1. Lack of knowledge about actual crop water requirements.
2. Reliability of water supply from canals.
3. High field infiltration and runoff losses.
4. Low crop yields.
5. Inefficient distribution of water on farm level (no measurement).
6. Knowledge gap to facilitate communication between researchers and farmers.
Inequity in Water distribution within a WUA

Improving water and land resources management for food, livelihoods and nature

Long furrows

200 meter

Extra water

Water shortage

50 m 50 m 50 m 50 m
Goal: Enhancing WP, crop yields and yield stability at plot level through improved on-farm water management

Objective: To strengthen the capacity (in terms of knowledge, extension material and methods) of the different actors in the agricultural innovation system through conveying solid and adapted extension messages relating to WP to the farmers.

Water Productivity = \( \frac{\text{return}}{\text{water consumed}} \)

Agronomic knowledge • yield

Hydrotechnical knowledge

- Needs/demand
- Feedback

www.iwmi.org
Map of demonstration fields within Ferghana Valley:

**Tajikistan:** 1 – Buri Kurmas, 2 – Shark, 3 – Navbahor, 4 – Amakjon, 5 – Khimoyatbonu; **Kyrgyzstan:** 6 – Tukhtarov, 7 – Tolobekov, 8 – Absattarov, 9 – Kyrgyzbaeva, 10 – Mamafaliev, 11 – Jusubaliev; **Uzbekistan:** 12 – Akiev, 13 – Abdurahmon ota, 14 – Mirzakhmad sahovati, 15 – Bahir imkon rivozh, 16 – Dilshoda, 17 – Kahramon davlat, 18 – Ergash ota, 19 – Sobir ota, 20 – Botirjon, 21 – Ortikov, 22 – Kosimov, 23 – Nilu, 24 – Durdon Gayrat, 25 – Omonov, 26 – Nabijon ota
Use of water saving technologies

- “Progress – Shavkat” – orchard - 5ha;
- “Akbarali fayz nihollari” – orchard – 10ha;
- “Dam guldastasi” – orchard – 25ha;
Best practices

Gated pipe

Alternate furrow

Short furrow

Water discharge measurement

Improving water and land resources management for food, livelihoods and nature

www.iwmi.org
## Volumetric water charges in Kyzyrabad WUA

<table>
<thead>
<tr>
<th>Name of Outlet</th>
<th>Coverage area, ha</th>
<th>Irrigation norm, m³</th>
<th>ISF, Kyrgyz Som</th>
<th>Based on tariff for 1 ha/som; 1 ha = 900 som</th>
<th>Based on actual water 1 m³/10 tyn</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outlet «Arenda»</td>
<td>16,54</td>
<td>16560</td>
<td>146621</td>
<td>14886</td>
<td>14662</td>
<td>224</td>
</tr>
<tr>
<td>Outlet «4-ha»</td>
<td>4,2</td>
<td>35608</td>
<td>27907</td>
<td>3780</td>
<td>2791</td>
<td>-989</td>
</tr>
<tr>
<td>Outlet «Kakyr-1»</td>
<td>16,3</td>
<td>122767</td>
<td>103507</td>
<td>14870</td>
<td>10351</td>
<td>-4319</td>
</tr>
<tr>
<td>Outlet № 5</td>
<td>8,3</td>
<td>64090</td>
<td>52618</td>
<td>7470</td>
<td>5261</td>
<td>2209</td>
</tr>
<tr>
<td>Outlet № 6</td>
<td>10,57</td>
<td>79864</td>
<td>71194</td>
<td>9513</td>
<td>7119</td>
<td>2394</td>
</tr>
<tr>
<td>Outlet «Kakyr-2»</td>
<td>17,68</td>
<td>140586</td>
<td>120461</td>
<td>15912</td>
<td>12046</td>
<td>3866</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>73,59</strong></td>
<td>698545</td>
<td>522308</td>
<td>66231</td>
<td>52230</td>
<td><strong>14001</strong></td>
</tr>
</tbody>
</table>

Note: On colunm “actual” 1 tyn = 710 som ha.
Based on accepted budget on 1 hectare accepted 900 som
900 - 710 = 190 som/ha less.

---

**PUBLICATIONS**

- Monthly bulletins
- Brochures
- Booklets
- Research articles in journals

---
Average water supply to pilot plots of WPI-PL project (cotton)

Water supply (cotton) m³/ha

- Kyrgyzstan
- Uzbekistan
- Tajikistan

Average for district 2009 2010 2011

Cotton yield

Demonstration field

Adjacent field

Average yield in Fergana Valley

Improving water and land resources management for food, livelihoods and nature
Main achievements

• Crop yields increased
• Farmers started to pay less amount of money for water after introduction of WFM and volumetric payment in Kyrgyzstan and Tajikistan
• Equity in water distribution improved within WUAs
• Project outreach (10750 farmers in Osh and Jalalabad) in Kyrgyzstan
• Close to 453 farmers in Uzbekistan
• About 228 farmers in Tajikistan

Thank you