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**WATER PRODUCTIVITY IMPROVEMENT  
AT PLOT-LEVEL  
(WPI-PL)**

**Phase II  
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## ABBREVIATIONS

WUA	Water Users Association
ADB	Asian Development Bank
BISA	Basin Irrigation System Authority
ER	Expected Results
YPO	Yearly Plan of Operations
WUG	Water Users Group
DH	Dekhan Household
IAC	Irrigation and Agricultural Consulting (Tajikistan)
IWMI	International Water Management Institute
IWRM	Integrated Water Resource Management
IWRM-Fergana	The Integrated Water Resources Management in Fergana Valley project
IC	Information Centre
S	Stakeholders
KSRII	Kyrgyz Scientific and Research Institute of Irrigation
ICWC	Interstate Commission for Water Coordination
MAWR	Ministry of Agriculture and Water Resources of Uzbekistan
MIWR RT	Ministry of Irrigation and Water Resources of the Republic of Tajikistan
MAWPI KR	Ministry of Agriculture, Water and Processing Industry of the Kyrgyz Republic
MTP	Machinery and Tractor Center
SRI	Scientific Research Institute
NM	National Manager
NPCC	National Project Coordination Committee
PSC	Project Supervisory Committee
CPM	Country Project Manager
SIC	Scientific Information Centre
WUA-SU	WUA Support Unit
SO	Social Organization
FFS	Farmer Field School
PD	Project Document
WPI-PL	Water Productivity Improvement at Plot-Level
WP	Water Productivity
RAS	Rural Advisory Services
SANIIRI	Central Asian Research Institute for Irrigation
CECI	Centre Canadien d'Etude et de Coopération Internationale
SDC	Swiss Agency for Development and Cooperation
CA	Central Asia
ZOKI	Advisory Training and Information Center
RAMWR	Regional Administration on Melioration and Water Resources

## 1. FOREWORD

The results of 2009 have shown to what extent the goals and objectives of the project have justified the expectations. Based on the assessment of the received materials and subsequent findings, the main objectives and activities of all partners were identified in 2010. The experience, gained in 2009, made it possible for the project executives to form a new type of relationship between different structures with different types of activities. This was particularly obvious while monitoring the activities of the Kyrgyz national team in 2009 that continued to use this experience in 2010. In 2010, the partners from Tajikistan showed the most interesting approach with a strongly pronounced positive result. Set by the initiative of the Regional Manager, Coordinating Council allowed all the partners of the project to be united into a single team. At the same time, all the interested organizations related to agriculture and water management were invited to participate in the work of Coordinating Council. As the project experience shows, the close collaboration of partners with a joint discussion of the project tasks and challenges concerning all issues of the agricultural production is the key factor for taking successful decisions, which facilitates the achievement of the main goal of the project: solving the farmers' problems while improving water productivity and profitability.

Over the past period, from 2008 to 2010, the WPI-PI project has achieved apparent success. Based on the elaboration of IWRM-Fergana project and being its brainchild, the WPI-PI project was able to identify the main ways of solving the problems hindering the improvement of land and water productivity at field level. In all three countries, the project has established a mechanism for rapid assessment of the situation in irrigated agriculture and transfer of innovative solutions through the relationship of different structures. The project was successful in attracting the interest of water users to apply these innovations, which laid the basis for the economic benefit of water users. Due to the efforts of the project, a basis was created for the design and development of the mechanism of interaction between the water users and the WUA, attracting the WUA key specialists as consultants. The system based on continuous monitoring makes the use of specialists efficient not only to farmers, by eliminating their shortcomings and mistakes through the consultations, but also for the WUA by adjusting the water supply schedules.

## 2. MAIN PROJECT PROVISIONS

### *2.1 Main Project Goals and Objectives*

The main objective of improving water management at field level lies in the following:

To contribute to more secure livelihoods, increased environmental stability, reducing water related conflicts and thus to greater social harmony, through improved effectiveness of water resources management.

**The goal of the 2nd phase** of the project is:

Enhancing water productivity, crop yields and yield stability at plot level through improved on-farm respectively on-plot water management, thereby avoiding negative impacts on the environment such as water logging and salinization.

**The objective of the 2nd phase** of the project is:

To strengthen the capacity (in terms of knowledge, extension material and methods) of the different actors in the agricultural innovation system through strategic alliances for conveying solid and adapted extension messages relating to water productivity improvement at plot level to the farmers.

### 3. MAIN PROJECT ACHIEVEMENTS FOR 2010

#### 3.1. *Main Achievements for ER1*

**ER1: National partners are identified, structural and personal links are established, and mode of cooperation is established.**

#### 3.2. *Main Achievements for ER2*

**ER 2: Partners in the innovation system have commonly revisited/identified the needs of farmers and analyzed them in view of matching them with known approaches and technologies to increase WP in order to select the ones that can be disseminated and others requiring adaptive research.**

**A2.3: A number of technologies (including farmers' innovations) are identified, which correspond to farmers' needs, can be readily implemented/have high adaptation potential and at the same time contribute to improving water productivity by proven practices.**

#### *What was planned?*

- Development of the system of evaluating the level of adaptation of proposed technologies which reflects actual needs of farmers and all actors of innovation cycle and is based on collected feedbacks.
- Evaluation of farmer's innovations identified by partners.

#### *What was achieved?*

#### **Evaluation of the advanced technologies introduced by SRI and IC for distribution among farmers**

The identification of technologies that improve water and land productivity is based on farmers' actual needs and problems. The SIC-ICWC regional group has developed a number of recommendations on improvement of land and water productivity based on the results of IWRM-Fergana project and handed them over to the partners for their adaptation at the beginning of the project. Within the last two years, partners have made every effort to adapt the proposed recommendations most of which had been adopted by farmers, without any additions and changes. However, the processes of agricultural activities require constant monitoring of farms' needs and problems that can detect emerging issues and challenges that require certain technological solutions. Hence, monitoring and definition of needs and demands of farmers and their problems is quite actual, it is quite possible that such monitoring should have a systematic character. Assessment and analysis of farmers' needs and problems shows that the problems at the field level are almost similar for all the countries. The peculiarities of some problems depend on the region, and caused by socio-economic, institutional and water conditions.

In 2008, at the beginning of the project the irrigation issues brought during the survey done among farmers of the areas covered by the project were not explicitly expressed, but were rather hidden, and made up only about 17%. In 2009, after the specific training and consultation, provided by the project specialists to the farmers, the share of questions related to the irrigation issues made up about 60% of the whole complex of problems. Later, in 2010, after obtaining the necessary advice resulted in significant savings of irrigation water, followed by savings on costs due to installation

of water-metering devices and introduction of the organized water accounting system for demonstration fields and farms covered by the project activities, the proportion of the irrigation issues has reached almost 70%.

Talks with farmers made it quite clear that they prefer to use the most practical recommendations, which could be implemented immediately and, what is most important, be useful. In many areas, the biggest concern is an untimely supply of irrigation water. Absence of efficient planning system for water use and allocation, taking into account the changed structure of the agriculture (transformation from collective farming to private farming) leads to the invalid actions of the operational services related to improper planning of water supply: The WUA and District Water Management Agencies (Rayvodkhozy) still use the plans developed for collective farms, which nowadays result in untimely supply of irrigation water to farmers' fields. The absence of water-metering system, resulted in generally organized payment based on the calculation by the irrigated hectare, causes a big problem to farmers, related to unjustified payments for water.

Payment for water is still an important issue for farmers. There are many farms in the region with large debts for the supplied water, which the farmers cannot pay, so it is natural that they have problems. The work of project executives with the regional farmers started in 2009 and extended to 2010 has facilitated the understanding of such notions as measurability and accountability of irrigation water as well as the possibility of introduction of payment system based on the calculation of actually used amount of water. Naturally, the farmers were very interested about how soon such an efficient payment system can be introduced. Thanks to the efforts of the Kyrgyz and Tajik parts of the project, a full package of documents for water accounting and payment based on the calculation of actually used amount of water was created, as well as a package of necessary legal documents related to the WUA - farms interaction. Thanks to this project, it could be said that today these countries have an efficient mechanism for transition from the old model of payment for irrigation water based on per hectare to based upon actual volume applied. Now, this package can be submitted in the form of the approved and finished proposal to the respective agencies of the agriculture and water management sector for its wide-scale adaptation. Due to these steps in Tajikistan, about 100 farmer households are moving today to the actual use of irrigation water and 67 farmers have already signed their contracts with the WUA and District Water Management Agencies. It is interesting that most of these farms were not covered by the project. In Kyrgyzstan, three interfarm canals in three districts have been completely switched to the interfarm management of irrigation water, based on the systematic water accounting and payment, calculated on the actual amount of water used. These approaches include the full range of technologies, which allow the farmers to take less water for their irrigation needs and be effective. The key elements of these technologies lie in the recommendations for the partners of all three countries, proposed in 2008-2009. In the Uzbek part of the project, the absence of payment for water use had caused a lack of motivation for farmers to use irrigation water rationally. However, due to the efforts of the project, the basic economic incentives of the normalized water use were identified and brought to the notice of all water users. The grounds for this were the land treatment indicators closely related to watering activities, the quantitative values and costs of which depend on the norms and number of irrigations during the crop production season, as well as the costs of extra watering and additional payment to the irrigators because of wrong technological scheme of irrigation.

Based on the farms' identified needs and problems, the following technologies which include not only hydrotechnical but also agrotechnical issues were identified for practical implementation by the water users:

1. Brochure "Models of irrigation scheme and standards for watering crops depending on soil moisture and daily field evaporation";
2. Recommendations on the selection of the irrigation technique elements for sandy soils;

3. A mechanism for effective water distribution among small farmers through the established groups of water users (channel "Sokolok" Osh region) has been tested;
4. Manual on selection of the type of water-metering facilities, requirements for their construction and operation was prepared;
5. Guidelines on carrying out the measurements for gauging devices and calculation of water supply;
6. Brochure "What is crop irrigation regime?";
7. Recommendations on the selection of technological irrigation scheme;
8. Guidelines on the calculation and selection of standards and elements of the irrigation technique for cotton and winter wheat;
9. Guidelines on water use planning for farmers households;
10. Guidelines on application of mineral fertilizers for cotton plants in the Fergana Valley;
11. Brochure "Land treatment activities and preparation of fields for the irrigation period";
12. Brochure "Cotton pests and diseases control";
13. Brochure "Weeds and their control";
14. Guidelines for planning and carrying out the land treatment activities for cotton growing.

### **Assessment of farmers' innovations set by the partners**

One of the important issues in improving water productivity and enhancing its effectiveness is the application of new ideas or forgotten traditional methods. In this regard, in 2010, the Uzbek and Kyrgyz partners established a number of interesting approaches that allowed their water users to obtain better results of their agricultural production with lower consumption of irrigation water. It was a method of water magnetization that was applied at the field inlet of irrigation water by creating a magnetic field on the side of "Bakht Imkon rivozh" farm in Altynkul district of Andijan region of Uzbekistan. This approach is quite interesting because the magnetization of water in the field changes the structure of the soil and plants at the molecular level. It is believed that the detailed study of this method might help to achieve great results in water management and crop productivity. At present, the farmer that used this method has a higher yield of wheat as compared to the other fields and other years.

In "Gulshan akhtachi" farm of Andijan region the cotton was planted using a non-traditional method - under the film, the innovation of this method lies in deep tillage, provided by the farmer, so the furrows in his field were deeper and wider. Due to the film application, the irrigation was done by small portions, with the first watering in the middle of July. The seasonal irrigation amount was 2.700 m<sup>3</sup>/ha. The application of mineral fertilizers was done only once, which also adds to this method and distinguishes it from the traditionally recommended one. As a result, the crop yield ran up to 5500 kg/ha. Many farmers were interested in these methods, but prior to their wide dissemination, it is necessary to research these methods and give them a scientific justification.

In Kyrgyzstan, since last year the farmers of the Aravan district grow rice by the method of "sowing along the furrow." Last year, 5 hectares were sown using this method as the second crop after early potatoes and onions, and this year already 50 hectares were sown. Such method of rice cultivation has a great advantage against checks sowing. The benefits are the following:

- Threefold saving of irrigation water
- The soil structure is not destroyed

- The soil does not turn into swamp
- The harvesting can be done with combine harvesters
- The fertilizers do not move into the lower layers of soil
- When plowing, the soil is loose, without forming lumps
- Ease in introduction and processing of fertilizers

In Tajikistan, plastic bottles are used for watering of young orchards in areas with insufficient irrigation water. These bottles are attached to the young plants of nursery-garden and the water is supplied through the cut holes, providing drip irrigation.

*What did not work? (For what reasons, and what should be done to fix it):*

Most part of the innovations lies in the details of the technology of application of irrigation water. The regional group had to develop a series of approaches and methods of search and evaluation of the farmers' simplest innovative solutions on the efficient use of irrigation water and associated land treatment activities. Hence, we did not have enough time to analyze the reasons why certain innovations did not work. We will pay more attention to this during 2011. No linkage for exchange of certain farmers' innovations was established between the project partners. Prior to wide dissemination of farmers' innovations, it is necessary, first, to conduct a detailed study of every experiment, and then, recommend it to the other farmers.

**A2.4: Technologies are selected that can feed directly to extension (ER3&4) and others where adaptive research is required (ER5).**

*What was planned?*

- Evaluation of technologies improved and adapted by research institutes and information centers for dissemination among farmers
- To prepare the issues which need adaptive research and to submit them to research centers

*What was achieved?*

In accordance with the results of assessment and analysis of farmers' needs and concerns related to their activities, the technologies recommended by SRI were selected by the Information Centers and other dissemination organizations for practical application.

Most of the technologies developed in the framework of the IWRM-Fergana project and proposed by the partners in 2009, was used by the information centers for adjusting them for further use by farmers and for training of trainers. Of 19 technologies, recognized as meeting the needs of farmers, 10 were selected in Kyrgyzstan, 11 in Tajikistan and 17 in Uzbekistan. In 2010, these technologies made up a core of recommendations proposed to the farmers (See the listed technologies 4-14 in A2.3).

In 2010, the selected technologies, requiring some adaptive research were studied in the Scientific-Research Institute and then used by IC as individual recommendations for training purposes. In some technologies of irrigation mode, the timing for sowing does not meet the climatic conditions of Osh and Sogd regions. The irrigation flow chart, developed for the conditions of Andijan region should be adapted to Osh and Sogd regions. As for the Uzbek part, of all the technologies the adjustment has to be done only for wheat irrigation mode, as today different kinds of wheat seeds are used, so the recommended irrigation modes need to be clarified.



### *What did not work? (For what reasons, and what should be done to fix it):*

The attempt to discuss problems of applying the selected technologies has failed at level of all partners from different oblasts. How much the obstacles and limits in applying the selected technologies are similar in different oblasts, what possibilities the partners have to eliminate them, etc. need to be assessed. .

The attempt to enter all the achievements of the project, including those that were developed during the activities of the IWRM-Fergana project for all partners, into a single information system of database has failed.

In addition, a scientific-technical council, consisting of partners and the regional group of specialists for validation and expert appraisal of the proposed recommendations should be organized to assess their readiness for dissemination or transfer for additional adaptive research.

### **3.3. Main Achievements for ER3**

**ER3: A first set of known/researched technologies are translated into a farmer-friendly language, are available for dissemination (e.g. for ToT to national partners), and a well-selected variety of trainers is trained to carry out dissemination to farmers.**

**A3.1: Identification of dissemination strategies, extension approach(es) and trainers to disseminate technologies/extension messages, adapted to local conditions.**

#### *What was planned?*

- Improvement of dissemination and extension strategy taking into account mistakes made by partners in 2009.
- To test and implement adjusted strategy of training project trainers to give consultations and carry out dissemination among farmers
- Organization of exchange of experience on extension methodology

#### *What was achieved?*

The strategy of implementation of the project objectives selected and elaborated by the partners as well as the obtained results suggest to conclude that the adaptive part of the project is over, and the partners together with farmers have finally identified a new form of interaction. Both the farmers and partner organizations began to show consistency and understanding of farmers' benefits of working together using the newly established system of knowledge and advice.

During the first year of the second phase of the project, the national teams with their own structural and personal relationships were formed in each of these countries. They have also managed to set up a quite favorable mode of cooperation between the partners. A report of 2009 contains the detailed description of the adopted strategy of dissemination throughout the regions.

**In Kyrgyzstan**, the emphasis was done on creation of groups of farms attached to the same outlet, with the transition to the new system of accountability of irrigation water and payment based on the calculation of actually used amount of water. Every group of farmers of the respective outlet has its own leader, chosen from among the farmers, whose duties include the accounting of water intakes, distribution between farms by the number of irrigation furrows in his field, keeping documentation on accounting of water withdrawal from WUA and irrigation water supplied to the

farmer's field. The outlet leaders are trained by the specialists from Information Center (WUA Support Unit and ZOKI). Within each outlet area, there are demonstration fields where the instructors from OSH RAS dissemination organization assigned to this area, present the most effective methods of irrigation water use. The project today has 16 outlets in three districts and 5 demonstration fields in five districts of Osh region.

**In Tajikistan** the emphasis was done on the measurement of supplied water and payment based on the calculation of actually used amount of water for all interested farmers. It was decided at the workshop to create a **Coordinating Council (CC)** for better interaction between the partners. The Coordinating Council consists of the following organizations: Institute of Sogd Branch Giprovodkhoz, PO Zarzamin, PO Irrigation Agricultural Consulting, PO SOF, Sogd Oblast Water Management Organization, Department of Agriculture (Agroprom), representatives of the WUA, representatives of farmer households and the Association of SIC-IWMI.

The membership in the Coordinating Council is free; anyone can participate in the meetings that are held monthly, during the first week of each month. According to the annual action plan and the next month work plan, the partners' reports are heard monthly and current issues that require operative decisions are discussed at the CC meetings.

Such working meetings took place not only in the office, but during the field visits too. All partners participated in the field visits which allowed responding to farmers requests in a timely and operative manner.

Certain organizational changes took place **in Uzbekistan** too. These changes were related to creation of two Information Centers located in Andijan and Fergana. Such decision was taken by the Uzbek partners in order to build a more productive interaction between trainers and farmers, to respond quicker to their needs and requirements, to be operative in providing the necessary advice or training, as well as to expand coverage of the farm households with the project activities. On April 24, at the meeting attended by all executives of the project, it was decided that the IC should organize meetings with the instructors (disseminators) to address the challenges, exchange experiences and discuss the needs of the farmers on monthly basis. In addition, they have to consider and discuss possible ways of transferring their knowledge to farmers and making their direct work with farmers more effective.

There are certain positive changes in the organization of the system of monitoring, evaluation of the farmers' fields and farmers' advising in the WUA "Tomchi Kul" of Andijan region of Uzbekistan. Here, the cooperation of agronomist and water engineer is based on the working principle of former collective farms, assuming the daily assessment of the farm fields, on-site detection of the errors and shortcomings of the farmers in the irrigation and land treatment activities, the discussion of these issues in the WUA and the adjustment of timing for water supply to farmers' households. Each farmer receives some recommendations from both agronomist and water engineer.

- The farmer has to correct the errors and fix the problems;
- The farmer is not going to get water until he agrees the irrigation periods with the agronomist and the water engineer;
- The agronomist and the water engineer (hydrotechnician) have to assess the actual requirement for water of the given field, and compare it with the farmer's request;
- In case the irrigation periods stated by the farmer is proved by the calculations of the agronomist and the water engineer, they also have to assess how the farmer's field is prepared for irrigation, in other words for water intake;
- If the field is not ready, the farmer is not going to get water until he prepares his field for irrigation in a proper manner;

- If the field is not ready for irrigation, both the agronomist and the water engineer do not recommend to irrigate such field and do not recommend the WUA to supply water to this field.

Using this principle, the WUA, due to the information provided by the agronomist and the water engineer always has a clear picture of all farms regarding the irrigation activities and can correct the timing for water supply during regular irrigations for each farmer.

Similar work was organized in Kuva district of Fergana region. In both cases, efficiency was achieved because the WUA agronomists in both Andijan and Fergana had the experience of former collective farms. The analysis of the project work shows that the work is done most effectively in those areas, where instructors-agronomists and water engineers gained their experience in the former collective farms. This indicates that the operation principle of agronomists and water engineers of the former collective farms is the most effective one and it is recommended to adopt this principle by other WUAs and teach this principle to the trainers of other WUAs.

In the WUA of K. Umarov in Fergana region one can believe in the Director of the WUA Mr.K. Umarov regarding the implementation of the project ideas, the results of which can already be seen today after the construction of most gauging stations at the border of farmers' households. Organization of water-metering system on the farms automatically settled the problematic issues of water supply for the farmers who receive water from the same canal of the irrigation network as the municipality. This is a good example showing that the initiative of the project can lend credibility to the project executives from both the WUA and the farmers and the residents of municipality. Using this incentive, one can promote further project plans on training the WUA specialists and the farmers, as well as developing the advisory system through consultations provided by agronomists and water engineers under WUA. It should be said that this WUA has no agronomist, and the work with farmers through this WUA is not quite effective. It is necessary to organize and develop an advisory system based on the experience of the agronomist and water engineer, as it was achieved in the WUA "Tomchi Kul".

#### *What did not work? (For what reasons, and what should be done to fix it):*

An attempt to extend the effective approach of the collaboration of the agronomist and the water engineer based on the principle of former collective farms to the other pilot WUAs, including the Tajik part of the project did not work well. There are shortcomings in the work of trainers in the strategies of all three countries, so the IC should change the approaches to training of trainers to strengthen their activities, especially working with farmers. In this regard, the most positive example is the work of the Osh RAS instructor of Aravan district. All organizations involved in dissemination activities have to develop a strategy or a step-by-step approach for instructors working with farmers. The regional group has to study this issue and present its recommendations.

In 2011, the regional group will have to collect all strategies of advisory work and present them in one document, then present it and discuss at the annual meeting of the stakeholders, as recommended in the protocol of the Supervisory Committee of 25.03.2010 (Fergana, Uzbekistan).

**A3.2: Search for and analysis of existing research and extension material regarding the technologies selected for dissemination, produce new extension material where required, revisit/develop arguments to sell the messages according to the needs assessment, identification of types of products to develop**

#### *What was planned?*

- Assisting research institutes and information centers in searching for existing research materials for production of more convincing materials according to the needs;

- Assisting research institutes and information centers in identification and analysis of the issues, indicators and parameters being part of the technologies, developed by the projects, which need to be adjusted;
- Coordination of researchers' activities on searching for and analyzing research materials which meet farmers' needs;
- Assisting at interstate level in exchange of research materials, solutions and recommendations;
- In Uzbekistan; with the absence of the water payment system and in order to increase the interest of farmers in effective use of irrigated water, the activities will be carried out to reduce farmer expenses and increasing their profitability and WP.

### *What was achieved?*

An important aspect of the project is the correct identification of the required technologies and especially of individual elements and parameters of already known technologies and recommendations for adaptation. The regional group based on their experience and assessment of the conditions of objects has prepared a number of issues that require a thorough study in the Scientific Research Institutes and Information Centers to improve the existing approaches and to adapt them to specific soil-reclamation conditions of farm's fields. The farmers' needs were established in determination of the cotton watering duration, the regional group has proposed a calculation version developed in the SIC ICWC (Sh.Sh. Mukhamedjanov, 2005), which assumes to have water consumption values for different soils and slopes. This problem was partially solved by partners, however for most of the objects this indicator has to be adjusted. The Tajik collaborates (Giprovodkhoz) have found a calculation of duration similar to the calculation developed in Soviet times, which they have offered for application. One of the important indicators of the effective use of water is the estimation of water losses during the irrigation. It is known that the main losses in the field are the surface drainage, the seepage losses and evapotranspiration. Discharge from the irrigated fields can be measured and this work is done to evaluate all the project demonstration sites. The evaporation value is not quite significant and it can be neglected in working conditions. The seepage losses are outside the evaluations. The regional group has proposed its own variant of identification of this value without complicated measurements, developed by them in the SIC ICWC (Sh.Sh. Mukhamedjanov, 2003). The meaning of this approach proceeds from the following consideration: complete saturation of the soil with moisture is equal to the value of maximum moisture capacity (MMC), prior to each irrigation, the moisture is equal to MMC-ET (where ET stands for evapotranspiration for a certain number of days), so, to make up for lack of moisture in soil resulted from evapotranspiration, we define the value of lack of moisture prior to MMC according to the well-known Ryzhov dependence. The obtained value of moisture is the net norm, which should be provided to the field. Knowing how much water is actually supplied to the field, the difference between this value and the lacking one, failed to complete moisture saturation represents the losses on depth seepage:

$$F = M - (L * 100 * V * (W_P - W_N)) - C_{CB}$$

Where: **F** – losses on depth seepage, m<sup>3</sup>/ha;

**M** – irrigation volume, gross m<sup>3</sup>/ha;

**L** – estimated layer, m;

**V** – volume weight of soil, g/cm<sup>3</sup>

**W<sub>P</sub>** - maximum field water capacity,% of soil weight;

**W<sub>N</sub>** - pre-irrigation moisture,% of soil weight;

**C<sub>CB</sub>**. surface drainage from the irrigated field, m<sup>3</sup> /ha.

SANIIRI, Tajikgyprovodkhoz and KSRII based on the needs and assessment of the existing studies have suggested a number of recommendations for the IC regarding the preparation of

educational materials, which have practically formed the basis of training seminars for trainers of disseminators:

1. Preparation of the irrigated area for vegetation irrigation and set up of water saving on-farm irrigation system;
2. Application of the advanced elements of technique and technology of furrow irrigation and strip irrigation;
3. The choice of the furrow length and water flow in furrows, depending on soil permeability and on the terrain slope;
4. Technology of even distribution of water flow by furrows;
5. Different methods of accumulating and saving of soil moisture;
6. Application of the advanced land treatment activities to improve soil fertility and water productivity by mulching the row spacing;
7. Fertilizer irrigation through the introduction of liquid fertilizers mixed with the irrigation water (fertigation);
8. How to determine the date of the next irrigation, and to calculate the rate of vegetative irrigation in the field conditions; and
9. The use of simple water-metering devices and water distribution facilities for rational use of the irrigation water.

### **Exchange of the educational materials between partners**

The regional group has held three workshops with all partners to discuss the project and share with experience. The partners have presented both their achievements and unsolved problems requiring further consideration. Therefore, they have discussed the identified problems and presented solutions. As for the Uzbek part, the training materials were presented by SRI and CI on the irrigation mode for wheat, and the irrigation mode for the lands with high groundwater table, which attracted certain interest of Tajik and Kyrgyz partners. In turn, the materials of Tajik partners on assessment and analysis of problems and methods of mastering the material by trainers and farmers aroused a sincere interest of Uzbek specialists. It was recommended to share with the materials and, if necessary, to study the experience of each country and provide advisory services regarding the adaptation of the submitted materials. In addition, the regional group under the SIC ICWC has opened a WPI-PL project site, which contains all the materials of the regional groups and partners. It was recommended to use this site to exchange with the information and materials between partners.

#### ***What did not work? (For what reasons, and what should be done to fix it):***

- The educational materials prepared by IC for instructors and by the dissemination organizations for farmers are still not acceptable for instructors. Moreover, the problem is not in the complexity of the material or low-level trainers, the problem lies in the weak processing of the material, in the methods used for its presentation to the instructors and, what is the most important - in timeliness. Partners from the IC should pay close attention to the availability of the material, to reconsider the method of presentation to the instructors and revise the form of handouts for farmers.
- As for Uzbekistan, the issue of bringing the arguments that helps farmers to understand the benefits, provided by the efficient use of irrigation water is still open. In this regard, the regional group proposes to use an approach based on the economic interest of farmers. To do this, the partners need to assess the loss of income of the farmers with the worst indicators related to untimely and non-normalized use of irrigation water and all respective land treatment activities.

Based on this assessment provide the recommendations and use them as arguments for farmers during the vegetation season of 2011.

### **A3.3: Develop products to be used in ToT and for farmers**

#### *What was planned?*

- To coordinate activities of research and information centers, and disseminators on development of documents for trainers and farmers.
- To organize exchange of recommendations and technologies between regions and countries.

#### *What was achieved?*

During the regional workshops of stakeholders and partners conducted on March, 25, 2010, on June, 17-18, 2010, and on October 4-5, 2010, it was suggested to develop a package of documents for each country including technologies that contain the following types of materials (in coordination with IC and assistance from SRI and CC):

- Original source containing the elements of effective water use at the field level, starting with the basics of irrigation, soil conditions, climate issues, humidity, organization of irrigations, crops irrigation requirements, irrigation mode (schedule), etc. In other words, this textbook should include all issues related to irrigation. Having this textbook, the instructors-advisors can use it during their consultations. A form of flow chart developed by the regional group can be used as such textbook.
- The list of technologies - a package, a catalogue and a list of all technologies. Catalogue of all technologies / innovations (list) on water saving and efficient water use at field level. In the catalogue, to specify what problems are solving, the matter of technology (pros and cons), the problems occurred during implementation and ways to solve these problems, the costs associated with the introduction, the economic benefits / benefits from the introduction, a person to contact in case of any questions.
- Guidance on advisory work for each technology, i.e. training modules developed for advisory work and teaching methods. The system of evaluation, feedback and monitoring of the proposed and adopted technologies should be also included into this package.

In the course of regional seminars, the exchange of materials was organized with all findings and materials provided by all participating countries and recorded on CD or floppy disk, which were distributed among the partners.

A website of the project was opened in the framework of this project and it was planned to set an information database not only for review, but also for the work online. Today, this site has all key decisions, reports, project goals and objectives, and it is gradually developing. The project uses the website to transmit all kinds of information, including approaches and technologies available for all partners and other stakeholders.

#### *What did not work? (For what reasons, and what should be done to fix it):*

The project should organize a collection and processing of all teaching and educational materials on doing advisory work, unify them in conformity with the problems of the project, and take them as a basic material for advisory activities. It should be integrated with the improved dissemination strategies.

### A3.4: Carry out Training of Trainers

#### *What was planned?*

- To organize a workshop for national coordinators, managers and regional implementers in partner organizations on the strategy of implementation of project's objectives, extension principles and approaches, evaluation and analysis of information, farm monitoring, and working with farmers and in taking account variety of factors (natural, economic etc.) in adoption of proposed technologies.
- Training of leaders and regional specialists of project partners on approaches to achievement of project goals and implementation of innovation cycle
- Training of extension trainers on how to conduct trainings, with the assistance of ToT specialist (based on ZOKI and RAS experience in Kyrgyzstan)
- Training of extension trainers on the principles of working with farmers
- Training of regional specialists and extension trainers on how to maintain and complete monitoring forms

#### *What was achieved?*

##### **ZOKI, Kyrgyzstan**

At first, it was ZOKI Information Center, which was mainly responsible for training of trainers of the Kyrgyz part of the project, but considering the specific training of outlet leaders responsible for conducting water accounting and water allocation between farmers' fields, all learning and training materials were transferred to the WUA Support Unit. However, both organizations have the same reference line of work with partners to provide the necessary materials and monitor the results of training. Before any training, the instructors of IC ask the disseminators for their needs in training. In their turn, the disseminators turn to the farmers with the same question. Then the instructors together with the disseminators study the problem to identify a subject of training. The identified subject is passed back to ZOKI (in writing form or orally). ZOKI transfers this subject to SRI. The SRI collects the available scientific research, technologies and other materials regarding the requested subject and transfers all that back to ZOKI. The materials provided by the Research Institute translated into a farmer-friendly language. Before each training, ZOKI using the Research Institute materials prepares modules, handouts and others. The participants together with partners set the date for the next training. Within the period between trainings, the ZOKI instructors are preparing the next training, and consultants of Osh RAS and WUA provide training for farmers and outlet leaders in their demo fields. The following teaching methods are used in providing training: a mini lecture, a presentation, a discussion, a brainstorming, a group work and a practical exercise. Most training sessions are held at the demonstration fields. In 2010, 17 training sessions were conducted for trainers of Osh RAS and WUAs (Table 1).

**Table 1. Trainings conducted by Kyrgyz partners**

<b>Training organizer</b>	<b>Number of trainings, pcs</b>	<b>Number of participants, people</b>	<b>Number of materials disseminated, pcs.</b>	<b>Addressee</b>
Osh WUA SU	9	200		Trainers
ZOKI and KyrgyzNII	8	142		Trainers
<b>Total:</b>	<b>17</b>	<b>342</b>	<b>474 recommendations, 455 brochures, bulletins 20 000 mass media</b>	

The ZOKI specialists in Osh visit the demo fields regularly to provide consulting services farmers. They usually participate in their trainings. Six booklets have been translated and published in farmer-friendly language as material for trainers and farmers. They were received from the Kyrgyz Institute of Irrigation and distributed to the instructors and disseminators (180 pcs.). According to the request of trainers-disseminators three booklets-recommendations (90 pcs.) have been republished.

### **PO "SOF", Tajikistan**

Educational activities of the center are aimed at conducting the training seminars for trainers – disseminators of partner organizations "Zarzamin" and "IAC". The subject of trainings is determined jointly with the trainers – disseminators and is based on the survey of farmers’ needs. At the joint meetings of Coordinating Council, these themes are clarified and adjusted. During the final part of each training, the listeners are given the tests on the subject to check how they have learned the material and to determine the degree of mastering. After analyzing the test results during the post-test discussion and clarifying the reasons of incorrect answers, an additional explanation for wrong answers is provided. The questions are prepared in line with the subject of training. As test results show, the average degree of mastering the subject by the listeners ranges from 80% to 100%. At the end of the training, the listeners fill out the assessment form. To determine the degree of mastering of educational material at the level of farms a monitoring (interviews with farmers) is conducted in areas jointly with the trainers of IAC and Zarzamin. Information about conducted trainings in Tajikistan in 2010 is presented in Table 2.

**Table 2. Trainings conducted by Tajik partners**

<b>Training organizer</b>	<b>Number of trainings, pcs.</b>	<b>Number of participants, people</b>	<b>Number of materials disseminated, pcs.</b>	<b>Addressee</b>
IAC and Zarzamin	20	363		Trainers and Farmers
IAC	18	449		Trainers
SOF	18	276		Trainers
<b>Total:</b>	<b>56</b>	<b>1 088</b>	<b>1 055 recommendations, 1 240 brochures, bulletins, 42 285 mass media</b>	

Monitoring has shown good results of learning demonstrated by members of farmer households, which indicates a high qualification of trainers and the availability of material. However, it is necessary to continue monitoring of mastering of training materials in the rest of DH for a more accurate picture. One of the main problems today is that the trainers-disseminators and the instructors of the Information Centers need more in-depth training regarding the rules and methods of training, the use of interactive methods for teaching adults and transfer of knowledge to farmers. To fix this problem, the Center has sent trainers to 5-day workshop on "Methods of Counseling in Agriculture and Teaching Adults", organized by GTZ in Khujand, on October 11 - 15. A distinction from the previous year should be noted: trainings for trainers - disseminators were held 2 weeks before the beginning of regular land treatment activities. In their turn, trainers - disseminators provide their training to farmers a week before the regular land treatment activities. Another distinction is that the trainings were conducted not only in the city, but also in Rural Technical Training Center, PO "SOF". That is caused by the fact that each training course includes some practice. In addition, RTTC has all necessary resources for this purpose: the field, equipment, information materials and expertise. The RTTC today is the prototype of FFS.



## Information Centers, Uzbekistan

In the Uzbek part of the project, in addition to training sessions organized for farmers located in the area covered by the project, the regional executives responding to the request of district administration have organized trainings for farmers and experts of the district, using the meetings held by Khokimiyats with all district agencies including farmers. Based on these meetings and due to cooperation with Khokimiyats, over 3200 newsletters were spread this year only in Fergana region.

In the ICs of Andijan and Fergana, the training sessions are held 1-2 times per month, including the upcoming irrigation and land treatment activities, as well as separate sessions on new technologies and approaches. Over the past year, 32 training seminars and trainings for trainers were conducted in three areas. The preparation of training materials was based on the results of problems' study in the farms. To improve the methodological and dissemination material, the IC holds meetings and consultations with farmers and trainers with regard to simplicity of the materials presented to them, and if they have comments or observations, the trainers take notes and then materials are corrected taking into account the farmers' opinions. Information about conducted trainings in Tajikistan in 2010 is presented in Table 3.

When choosing the training program for trainers-disseminators the IC pays its attention to:

- Level of hydrotechnical knowledge of trainers in combination with farming, agro-chemical and economic issues. If they do not have the abovementioned skills but are interested, then the efforts are applied to update their knowledge on the subject;
- Bulk of trainers' knowledge on the applied technologies, what is the history of the problem, why this or that technology is proposed, how things are going now, how could this technology be further developed;
- The level of perception of trainers-disseminators is revealed through testing and adjusted with regard to pace and content to be improved as soon as possible;
- Track the application of the knowledge gained by trainers when consulting the farmers, with the participation of our experts at training sessions and consultations.

**Table 3. Trainings conducted by Uzbek partners**

<b>Training organizer</b>	<b>Number of trainings, pcs</b>	<b>Number of participants, people</b>	<b>Number of materials disseminated, pcs.</b>	<b>Addressee</b>
Andijan and Ferghana ICs	21	499		Trainers-disseminators
Andijan disseminators	9	251		Farmers
Ferghana disseminators	15	320		Farmers
Namangan disseminators	7	156		Farmers
<b>Total for Uzbekistan:</b>	<b>52</b>	<b>1 226</b>	<b>5 530 recommendations 11 670 brochures, bulletins, 95 452 mass media</b>	

## Regional Group

In 2010, three regional workshops were conducted in the framework of the project, given the opportunity for all partners from Kyrgyzstan, Tajikistan and Uzbekistan to meet and exchange experiences and opinions. It was possible in the course of the presentations and working meetings with the project managers and regional group to build a constructive partnership for the successful implementation of the project:

- The purpose of the annual seminar of the project stakeholders, which was organized in Ferghana was to familiarize all partners from 3 countries with each other, to report for 2009, to give an objective assessment of neglects, made in 2009 and to develop a work plan for 2010. There were also censorious remarks concerning the work on coverage more farmers with the project done in 2009.
- The workshop-meeting on "Implementation Strategy of the Project Objectives and Sharing the Experience", which was organized in Tashkent on June 17-18, 2010 was devoted to presentations and exchange of views of all participants of the innovation system - SRI, IC and CC. It was noted that the organization of Farmers' Schools is an important part of the project. Farmers' Schools, as well as advisory services should be organized in places convenient to the farmer, such as the WUA, however, there is also other experience such as the demonstration plots under the advisory services. It was also noted that the basic principle of advisory service lies in assisting the farmers to solve their problems, to increase their knowledge in crop production, and therefore, to increase the farmers' incomes.
- The workshop on "Implementation Progress of the Project Objectives and the Action Plan for Non-Growing Season", was held on October, 4-5, 2010 in Tashkent, where the need for step-by-step work of trainers and farmers was pointed out as well as the development plan for FFS. It was decided that ZOKI based on their experiences would be developing the activity principles and requirements for FFS, based on the current situation and data and orienting to Osh RAS. The main goal of FFS is to eliminate illiteracy among the farmers in the agricultural and water engineering issues. The need for improved training of trainers issue was also noted. Trainers should be selected from among high-qualified specialists.

### *What did not work? (For what reasons, and what should be done to fix it):*

Unfortunately, the Kyrgyz partners could not participate in the seminar meeting held on June 17-18, 2010 in connection with the latest events. All the materials and the electronic versions of the protocol were sent to the Kyrgyz partners via e-mail. However, the Kyrgyz partners managed to participate in the seminar that took place on October 4-5, 2010 in Tashkent, where they presented their achievements for the second half of 2010.

Because of the situation in Kyrgyzstan, we were unable to conduct training of trainers for consultants with the attraction of specialists in this sphere (similar to the experience of ZOKI and RAS in Kyrgyzstan). However, the electronic version of the methods, used by ZOKI and RAS was transferred to partners in Tajikistan and Uzbekistan for a thorough study, so, if everything will go well, the project should organize such trainings for all partners of the CC and IC in 2011.

### **3.4. Main Achievements for ER4**

<b>ER4: Satisfaction of farmers with the provided training/advice is evaluated in two pilot areas in each of the three countries.</b>
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#### **A 4.1: Dissemination of selected hydro-technologies by ToTed trainers in pilot areas together with corresponding agro-technical messages**

##### *What was planned?*

- Assistance to national partners in developing and further in testing the extension approaches, which are aimed at increasing farmers' interest to use irrigated water with more efficiency with the elements of water saving.
- Consulting and assisting in adoption of the methods of organizing water users groups along water courses for small plots in Kyrgyzstan;
- Assisting in advisory work, dissemination of selected and adapted (translated into a language clear to users) technologies through all available approaches outlined in ER3;
- Improvement and introduction of general forms for continuous monitoring of advisory work in farms;
- Assisting in organization and implementation of consultations in farmer schools;
- Coordination of advisory work performed by information and experience disseminators in different countries;
- Development of guideline for farmers with the list and description of all negatively impacting factors (climate conditions, deficiency or prevalence of moisture) to make appropriate decisions (selection of best regime and agronomic measures) in effective use of irrigated water.
- Installing drip irrigation systems in Tajikistan and Uzbekistan based on the needs, interests and contributions of farmers to demonstrate water saving impact (see Annex 2); and
- Construction of water flume meters (hydroposts) with flow regulating gates based on the needs of farmers and suggestion of National partners to demonstrate the incentives of water measuring (see Annex 3).

##### *What was achieved?*

The advisory work with farmers is one of the most important and most difficult issues, so one can say that success of the project virtually depends on it. As it was mentioned in the last year report (a detailed report for the year 2009), the approaches in consulting farmers in each country should be based primarily on economic interests of these farmers. Any advice and guidance to farmers will eventually have to contain some economic benefits. Each consultant has to imagine the whole chain of links from the moment of providing an advice to the farmer to the real benefits this farmer can get due to his advice. Based on this principal of advisory work, each country has adopted its own strategy of action. The main methods of advisory work, which can be directly applied to the farmers' households, are:

- Visual monitoring of farm fields;
- On-site poll of the farmers about their needs and requirements;
- Advice and proposals to correct deficiencies in the technologies of agronomical works in the field;
- Trainings on improvement of already used technologies, based on knowledge;
- Recording of the results of farms' monitoring and interviewing the farmers themselves for special logs.

Trainers from dissemination organizations conduct dissemination of technologies among farmers. Each trainer has 14-15 farmers' households assigned to him with an area of 450-530 ha in Tajikistan and in Uzbekistan (Table 4).

**Table 4. The area of farms covered by the disseminated technologies**

Region, District Name	Number of dekhkan households	Area of dekhkan households
<b>Tajikistan</b>		
Spitamen	74	2677
J.Rasulov	65	1290
B.Gafurov	22	1280
Kanibadam	19	1813,5
Mastcha	35	447
Zafarabad	13	397,1
<b>Total</b>	<b>228</b>	<b>7904,6</b>
<b>Uzbekistan</b>		
Andijan region	201	4751
Ferghana region	178	6795
Namangan region	74	5298
<b>Total</b>	<b>453</b>	<b>16844</b>

Dissemination of technologies is carried out in two different ways depending on the availability of technologies: the dissemination of technologies that does not require any additional adaptations and technologies adapted in the information centers.

In the first case, the disseminators that have received recommendations on technologies from the project disseminate them within two years among the farmers through on-site consultations, newsletters and brochures, as well as through workshops with farmers' participation. In the second case, the technologies are finalized in the Information Center first, then the disseminators have to be trained with these technologies and only then, they can be handed over for dissemination.

In Kyrgyzstan, on the one side, the dissemination is carried out among farmers working in the irrigated areas, serviced by water outlets through which the WUA Support Unit introduces a project idea of control system for water distribution to small areas of farmers' households. On the other hand, the trainers from Osh RAS are working with the farmers in five districts on the organized demonstration plots (Table 5).

**Table 5. Information on the land areas and number of farms located within the project zone of Osh oblast**

District name	Water channel name	Number of outlets, pcs	Actual sown area of the channel, ha	Number of farmers
Aravanskiy	Kaiyrma	6	73,59	96
Karasuiskiy	K-6-2	14	49,30	46
Uzgenskiy	Karool-1	4	119,57	134
<b>Throughout the region :</b>		<b>24</b>	<b>242,39</b>	<b>276</b>

According to the results of this work, 60 - 70% of the provided consultations were related to water issues, 20-25% of the questions touched on farming practices, and 5% of the questions referred to legal and economic issues. Of all water issues, the greatest interest is shown to the irrigation mode, water accountability and technological scheme of irrigation.

The most popular and adapted technologies that meet the farmers' requirements are the following:

- Water-metering devices and water accounting on farms;
- Recommendations on selection of technological irrigation scheme;
- Crop irrigation mode;
- Guidelines on calculation and selection of standards and elements of the irrigation technique;
- Water use planning for farmers households;
- Land treatment activities and preparation of land for the irrigation period;
- Combating cotton pests and diseases;
- Application of fertilizers.

The process of technology dissemination among farmers is rather ambiguous, and the coverage area is estimated not only by the demonstration fields and by farmers' households located around it. The coverage area depends on the method of dissemination of the project developments and approaches. In the first two cases, the detailed tracking and active advising of the farmers and all other stakeholders is provided. In the second case, the newsletters and brochures produced by the project are distributed through workshops organized by Khakimiyats at the district level, as it is the case in Uzbekistan. And, in the third case, through the mass media – newspapers, radio and television at the regional level. Information on the issued recommendations on use of irrigation water and crop cultivation is presented in Table 6.

**Table 6. Information on the issued recommendations on use of irrigation water and crop cultivation**

№	Types of publications and other materials for dissemination	Quantity by countries		
		Tajikistan	Kyrgyzstan	Uzbekistan
1	Recommendations	1570	275	960
2	Guidance	695	-	250
3	Soil-conservation bulletins	12228	455	11100
4	Newspaper articles	8	4	8
5	Booklets	682	199	570
6	Banners	36	-	36

***What did not work? (For what reasons, and what should be done to fix it):***

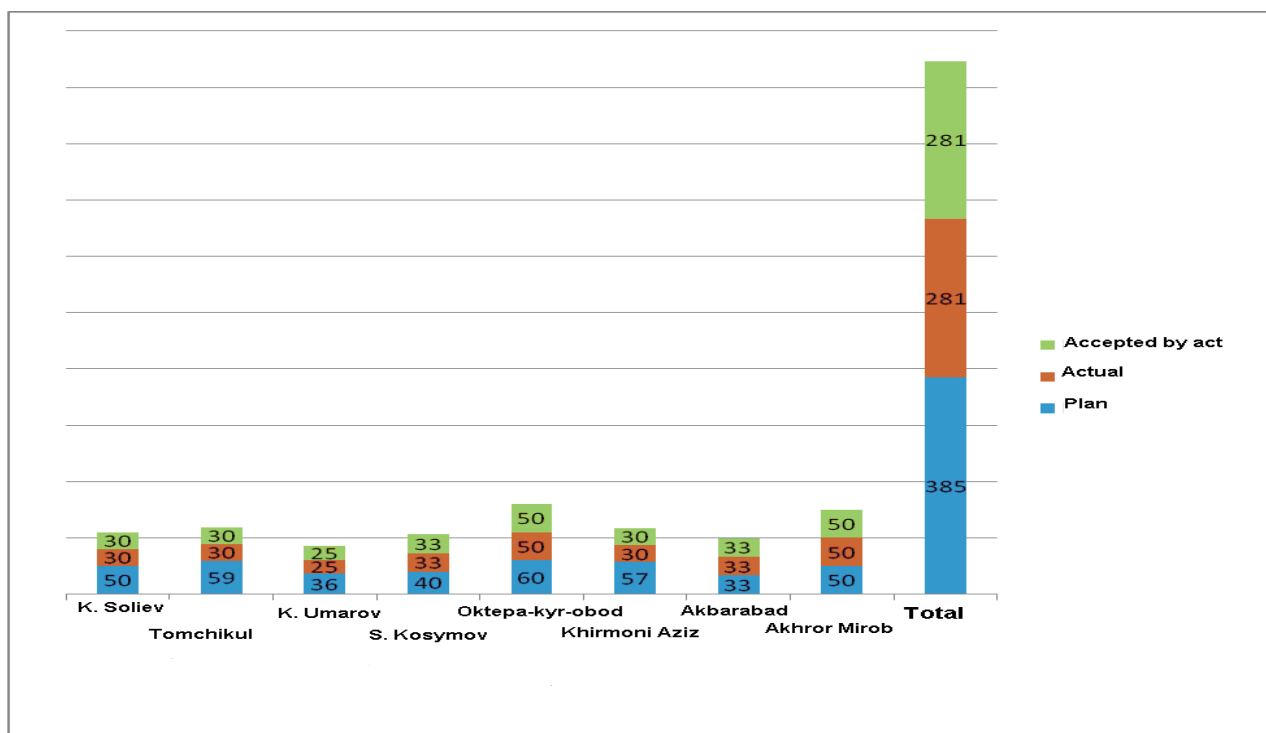
It should be noted that the partners today have not yet fully mastered the proposed technologies, and the training of trainers - the key individuals for dissemination activities and work with farmers - program needs some improvement. In the conditions of our region, it is necessary to understand that one should convince the farmers about efficiency of the proposed approaches using some convincing arguments. Unfortunately, most of the trainers are weak in bringing to the attention of farmers the most beneficial aspects of the proposed innovations. There are different types of farmers: those that have lot of experience accept the helpful advices gladly, whereas those that have started their agronomic activities recently do not accept the recommendations very easily.

**Construction of gauging stations**

The project is jointly implemented by IWMI and SIC ICWC and local partners of the project in Tajikistan and Uzbekistan. The equipping was provided with regards to three main areas

1. Complete equipping of farmers' channels in the WUAs covered by the project "WPI-PL" with water-metering and regulating facilities to prepare the basis for transition to metering and volumetric method of monitoring the water use and development of water payment models. The contractual relationship of farmers and the WUA may be improved after that transition;
2. Equipping with the gauging stations the basic WUAs of IWRM-Fergana project to improve water distribution in the channels of the WUA, according to submitted applications, without compromising the end water users, the introduction of daily water use planning, and monitoring of obtaining water from the water management organizations, its distribution within the association channels and to improve the qualification of WUAs staff in the field of construction and operation of water measuring devices;
3. Equipping with the WUA water-metering devices in the area of the TMP of "IWRM-Fergana" project for intensification of the process of social mobilization, improving the water distribution within the WUA, the active support of GWP and introduction of two-part system for the services of WUAs on water supply.

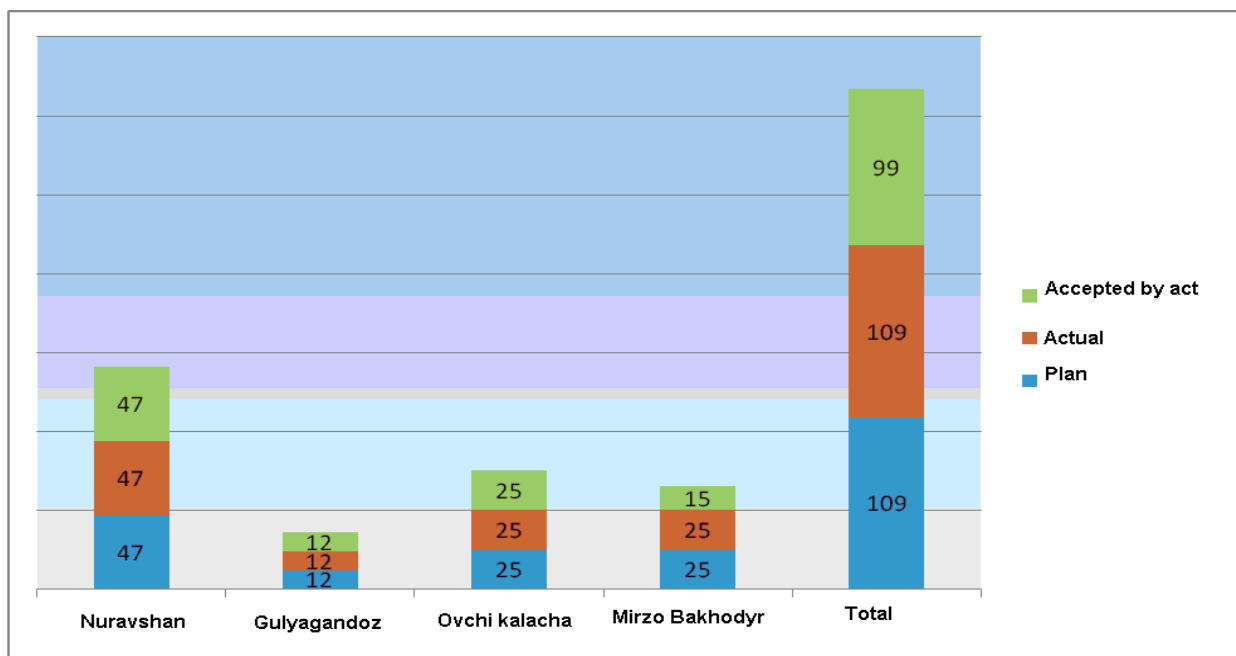
**Fig. 1. Planned, actual and certified water-metering facilities in the selected WUA in Uzbekistan**



The regional project staff conducted a series of on-site trainings, organized in each selected WUAs, in order to train in practice the WUA staff and farmers, how to build the water-metering facilities. Over 200 people participated in these training events. Eight WUAs in Uzbekistan and four WUAs in Tajikistan have been selected for the construction of gauging stations together with the project partners. Three hundred eighty five gauging stations were planned to be built in Uzbekistan and 109 - in Tajikistan. The executives of the project have managed to build a 281 gauging station in Uzbekistan, and they were all certified (Fig. 1). It was planned to have 109 gauging stations in Tajikistan built, all 109 gauging stations were built, of which 99 were certified and the remaining 10 gauging stations will be certified in 2011 (Fig. 2). It has to be noted that water users are very interested in the construction of gauging facilities and measuring the amount of actually used water, and they welcome the idea of having volume-based water use and the introduction of payment by actual volume.

In Kyrgyzstan, the sites for the construction of gauging stations have been identified, but it was not possible to start the construction, due to recent events in Kyrgyzstan. Funds allocated for the construction of gauging stations (regulating and gauging structures) in Kyrgyzstan had not been disbursed.

**Fig. 2. Planned, actual and certified water-metering facilities in the selected WUA in Tajikistan**



### Construction of drip irrigation system (DIS)

The regional group has conducted a tender (competition) at the option of the organization, which will take over a complete construction and installation of DI systems. On completion the examination and discussion of all submitted proposals for execution of construction works from the construction companies on the DIS at the area of. 40 ha., the Commission found that the proposals were submitted by 3 organizations:

- LLC “Santechplast” (Director - Normetov T.F.)
- JV “Right Way “(Director Bobylkov S.A.)
- JV “SANIPLAST” (Director Lyubar R.G)

Of all the submitted bids a proposal of JV SANIPLAST won the tender "with the following advantages: lower cost of building and construction works, operational experience with similar objects, availability of the sufficient number of qualified staff, a strong production basis and construction equipment.

Based on the selected organization, a tender was also held among the farmers willing to install the system of drip irrigation. The preference was given to the farmer households engaged in horticulture. The following conditions for the selection of farmer households served as the criteria:

- Lack of irrigation water directly in the selected area;
- Complexity of topographical conditions– problems with furrow irrigation;
- A farmer’s wish to introduce modern technologies in the agriculture;
- Availability of a sustainable source of water - well, irrigation network e t c;

- Farmer's consent to compensate part of the construction costs of DI system (not less than 25%).

Based on the evaluation of the proposed applications from farmers the following farms have been pre-selected (Table 7):

**Table 7. A preliminary list of applications for DIS installation, submitted by the farmers**

Republic/ Region	District	Farm	Culture	Area, ha
<b>Tajikistan</b>	Zafarabadskiy	"Mardon"	Orchard	8
<b>Uzbekistan</b>				
Namangan	Kasansarayskiy	"Damgul Dostasi"	vineyard	20
	Yangikurganskiy	"Ismoil Sharipov Ibtagirovich"	vineyard	10
				<b>30</b>
Ferghana	Ferganskiy	"Progress-Shavkat"	Orchard (sweet cherry)	5
		"Muzafarjon obod fayz"	Orchard (peach, apricot)	1
		"Tulanov"	Orchard (peach)	4
		"Mamasydyk Khudoybergenov"	Orchard (peach)	1
		"Khakimjon Khamidov bogi "	Orchard (peach)	2
		"Yerdon"	Orchard (sweet cherry)	2
				<b>15</b>
<b>Total for Uzbekistan</b>				<b>45</b>
<b>Total for Project</b>				<b>53</b>

However, in the process of studying the conditions of each farm and because of the proposed requirements some farmers abandoned the construction of DIS, in particular from the Tajik side. To date, several farms in Ferghana region remain in question. As for Namangan region, in the farm "Damgul dostasi" a DIS has been already built in September and will be launched prior to the vegetation season.

#### **A 4.2: Evaluate adoption of technologies and satisfaction of farmers with the advice provided within pilot areas**

##### *What was planned?*

- Development and adoption of the tool for evaluation of farmers' satisfaction and adaptation of proposed technologies;
- To develop indicators of farmer's satisfaction with given consultations and to conduct evaluation of satisfaction by using these indicators;
- Development of the Terms of Reference and identification of the third party to conduct evaluation;
- Monitoring aimed at identification and making a list (analysis of why and for what reasons) of the most suitable and mostly used technologies, and technologies not adopted by farmers. To find out why some technologies are not used. To assess the weaknesses of the technologies not adopted by farmers, as well as the methods of their presentation and dissemination among farmers.



### *What was achieved?*

In 2010, a team of national managers in conjunction with the partners evaluated the satisfaction of farmers with the proposed technologies. Such an approach was not chosen randomly, the purpose was to bring actual results to the partners and make them aware of the results of their activities, so they can see themselves what results were achieved and what should be done better, which is important to the further promotion of the project. Analysis of the results showed that advisory work conducted with the farmers gave not well visible but high efficient results for those farmers who took advantage of these technologies.

In Uzbekistan and Tajikistan, the farmers support the involvement of experienced and recognized agronomists in the staff of the WUA. Farmers are worried about financial support to the agronomist - permanent employee of the WUA. Therefore, the farmers recommend having the WUA staff approved by the Council or at the annual meetings of the WUA to include maintenance costs in the budget. In Tajikistan, the farmers realized that to improve profitability it is necessary to move to so called “bulk use” of the irrigation water; so, 25 farms have applied for installation of WMS, the farmers gradually became more open to the recommended agro- and hydro-technologies and the advice of the trainers. Today, the farmers themselves offer the topics for seminars and address the trainers for advice.

The farmers point out the importance and usefulness of monitoring based on the worksheet that was developed and proposed by the project as the foundation of the advisory work for the consultants, according to which the normalized package of activities for the whole season is presented as a planned schedule.

Many farmers admit that sometimes they do not have time to read brochures and newsletters, because of their over-employment and other objective reasons. However, they have expressed their interest in setting the training for irrigators (farmers hire seasonal irrigators – one man per every 2-3 hectares) and to organize a school for irrigators under the WUA. The farmers also pointed out the importance of demonstration of the project technology in the field. They have noted that this is a good approach for dissemination, and a good opportunity to fix the theoretical knowledge gained during the training.

**In Kyrgyzstan**, the partners note the high interest of the farmers in the mechanism for regulation and distribution of irrigation water among farmers of small areas command to one offtake, and transfer to volumetric payment for water used.

Due to the introduction of this method, the farmers have to pay more attention to the duration of irrigation when watering crops, and to the technological scheme of irrigation, the possibility of reducing water consumption, irrigation periods and the number of irrigations. The farmers were finally convinced and recognized the proposed technologies. As the farmers themselves and other professionals say now, there is no better solution today for even and equitable distribution of irrigation water. According to the farmers’ statements, the number of conflicts has notably declined. Payment for the WUA services on supply of irrigation water is done in a timely manner. This enables for a timely completion of all kinds of works envisaged by the annual budget of the WUA.

### *What did not work? (For what reasons, and what should be done to fix it)*

The project has not yet developed a method of assessing of farmers’ satisfaction with the received technologies, knowledge and advice. The basic approach includes a survey of farmers and expert evaluation of the results obtained from the farms covered by the project. May be, one should think about the development of an assessment methodology concerning farmers’ satisfaction, if such a method is possible at all, given the different approaches in working with farmers across the countries.

#### **A4.3: Combine evaluation of dissemination with repeated needs assessment**

##### *What was planned?*

- To submit the results of evaluation to research institutes and information centers for comparing with the needs and adjustment for launching another cycle of innovations

##### *What was achieved?*

The IC, RSI, and CC have a close working relationship. Therefore, a combination of the evaluation of dissemination and assessment of needs is performed quite smoothly. Each country has created a favorable environment for close cooperation and this we can consider as one of the achievements of the innovative partnership.

#### **A4.4: Analyze success and failures and adjust technologies, messages, extension approaches, extension material or ToTs accordingly. Follow-up on weaknesses/gaps identified in order to initiate subsequent (improved) cycle**

##### *What was planned?*

- To assist the partners in continuous monitoring (record keeping) of achievements, failures, gaps, weaknesses of methods, disseminated materials, and ToT;
- Analysis of successful and ineffective actions of the partners in development and dissemination of technologies, extension approaches, and training of farmers in farmer schools;
- Analysis of training and consultation materials (brochures and newsletters, handover materials), as well as translated materials of information centers;
- To systematize success and failures, and to prepare proposals for wider use of successful results and improvement of ineffective ones.

##### *What was achieved?*

**In Kyrgyzstan**, the main problem is the farmers' lack of experience in efficient use of irrigation water, as well as the presence of such problems as waterlogging and high level of groundwater table. The absence of gauging stations (Vodkhoz have no time) and water-metering system leads to conflicts between Mirabs and water users. Therefore, the work on the establishment and bridging of the partnership and cooperation at all levels that was undertaken by the project is very important.

Thanks to the project, a system of partnerships among different organizations (the Committee of Water Resources, Kyrgyz NIIr, Learning Center, Training, Consulting and Innovation Center, Rural Advisory Service (RAS) and the WUA Support Unit) has been organized, a joint activity of which allows you to assess immediately the actual problems of the farmers and provide recommendations according to their decisions. Such system of cooperation has allowed the partnership organizations to implement the following activities: 1. to be in a constant relationship with the farmers, 2. to assess regularly the problems of farmers; 3. to introduce the developments of the research institutes immediately at the farmer's field, 4. to train the trainers for advisory services.

One of the important achievements of the project in Kyrgyzstan is an organized approach to the distribution of irrigation water to small areas of farming.

Such system of water use allowed the farmers of the pilot outlets to pay for irrigation water by actually used amount of water, which made the use of irrigation water more disciplined and increased its efficiency.

According to the Kyrgyz Government's Resolution, a water tariff was increased from 0.03 som to 0.05 som per 1 m<sup>3</sup>. Some of the WUAs at their meetings can raise tariffs up to 0.10 soms per 1 m<sup>3</sup>. Therefore, the farmers became more serious about paying for water. They began asking questions regarding WP at the field level, with which they began to apply to the State Committee of Water Resources and to the Government Bodies regarding the volume of supplied water, the price of water, water apportioning between farmers in the absence of gauging stations. Today, nobody is responsible for all these problems. Rayvodhozs have no authority, they supply water through gauging station of inter-farm channel and there is nobody to divide water to farmers at the field level. There are numerous examples of loose work of Mirabeaus. Therefore, the proposed technique approved by the project is a timely and unique approach providing an objective management of irrigation water at the field level.

In the southern areas, the heads of village councils, some of the Khakims became interested in our project. Administration of Batken Region (oblast) has addressed to the project executives with a request on organization of the system of irrigation water management at farm level in their region. The idea of this project is supported by the administration of the State Committee on Water Resources and Irrigation. It has also aroused interest among farmers and water users in other regions of the country. The administration of the State Committee for Water Management and Land Reclamation has proposed to use the approach developed by the project in other regions.

**In Uzbekistan**, a wide range of issues successfully solved by the project has aroused great interest among farmers and the regional administration. The project activities are based on coordination and partnership of various organizations starting from the SRI to BISA and the WUAs as the basis for introduction of advanced technologies to farming activities. The joint work of the agronomist and hydrotechnician, by the principle of former collective farms, organized in WUA can be considered as a significant success of the partnership cooperation. The principal activity of these two specialists includes constant monitoring of the farmers' fields, competent advice and preparation of the operative proposals regarding the timing for supply of irrigation water to the WUA based on the monitoring results assessments for the farmers' fields.

**In Tajikistan**, an important result of the project and the first step in the development of dissemination activities among farmers is the fact that today a farmer had realized the need for water-metering system, understanding the significant economic benefit from the new payment system and the water saving factor. To enable Tajik farmers to move to a new system of water accounting in 2010, the project executives have prepared all necessary documents.

Since 2010, work has been in progress in completely equipping farms with gauging stations at the pilot WUAs in Uzbekistan and Tajikistan. This work is very important from the point of arrangement of water use and providing more precise corrections to the water use plans of farms. The same basis will be used for building of the effective mechanism of the relationship between the WUA and the farmers.

#### *What did not work? (For what reasons, and what should be done to fix it)*

Questions related to training of trainers based on the test results, ToT methods and the absence of the well-established system of knowledge communication to the farmers remain problematic issues that need further development. An attempt to systematize successful and unsuccessful results and prepare proposals for improving unsuccessful results is in progress.

### 3.5. *Main Achievements for ER5*

**ER5: Adaptive research to evaluate the sustainability of technologies proven successful under different environment (e.g. on financial viability, labor aspects, gender viability)**

**A5.1: Technologies requiring adaptive research (A2.4) are evaluated and possibly adapted by carrying out desk studies and/or on-farm farmer-managed adaptive research**

#### *What was planned?*

- Evaluation of technologies requiring additional research and improvement;
- Identification of subjects suitable for adopting through improvement in cooperation with information centers and disseminators. If necessary, to involve other research institutes which specialize in this area;
- Development and adoption of the methodology of field researches which is based on farmers' needs, through involvement of the partners, and includes such aspects as farmers' tools, evaluation of viability of proposed technologies taking into account socioeconomic criteria: financial and labor costs, social factors (hampering), gender issues, access to technologies (for example, where farmers can get cheap hydroposts, drip systems, etc), difficulties in adaptation and maintenance of technology, impact of other factors, like water fluctuation, sustainability of WUA, etc)
- Additional researches on financial sustainability of proposed system of transfer and dissemination of knowledge (in this particular case), learning project lessons, researches to find out if farmers agree to pay for advice, additional agronomists in WUAs, or how agronomists-consultants can receive income from giving advice, etc.

#### *What was achieved?*

Based on the analysis of the problems identified in the farm, the project specialists found that every year has its specific climatic differences that require a revision of the applied agronomical and irrigation activities, tailoring them to the specific conditions of the year. They can radically change the modes and norms of the resources used in agriculture. These are, mainly, activities related to water and temperature conditions in the soil, which directly relates to the planning of irrigation schedule. Differences and deviations of the existing recommendations for the ongoing agricultural operations related to technological scheme, where the performance standards of agricultural works and crops development phases, as well as the developed irrigation modes do not correspond to the actual needs of the norms of crops for specific conditions of the year. Therefore, all the scientific-research organizations conducted, within the framework of the project, a number of adaptive studies of the existing developments to develop the appropriate recommendations for the optimal rate and timing of regular watering, taking into account the prevailing factor of weather conditions of every year and every month, as well as recommendations on adjustment of land treatment practices related to irrigation activities.

**In Tajikistan**, the SRI and the Information Center have prepared a list of issues, based on the needs and demands of the farmers, as well as the deficiencies identified during the last period of work under the project, which required more detailed study of adaptive research. The list includes:

1. Mechanism for transferring knowledge to farmers;
2. Selection and allocation of high-yielding crops, taking into account soil and climatic conditions of the area.
3. Planning for water use and mechanism of contracting between irrigation water suppliers and water users;

4.Improvement of technological irrigation scheme to suit local conditions;

5.Mode of irrigating crops, taking into account weather conditions.

**In Kyrgyzstan**, the irrigated agriculture in its present form, is unstable on itself. The productivity of irrigation water keeps declining from year to year, due to the growing processes of land degradation caused by inefficient irrigation. The fact of the progressive land degradation is established in most areas covered with the irrigation systems. Moreover, the anthropogenic impact of misuse of irrigation water on soil and relief environment in some areas is close to catastrophic.

Under the new conditions of management by small farms, the farmers, as a rule, with no experience or knowledge of the rules and regulations of the irrigation activities, perform traditional furrow irrigation and land treatment activities, and manage the operation of the irrigation network. Unqualified use of water leads to large losses of irrigation water, soil erosion, loss of productivity of irrigated land and crop yields. This directly affects the living standards of rural people whose financial well-being is entirely based on agricultural production.

In 2010, the following issues, based on the needs and demands of the farmers, were put in front of KSRII for further adaptive research:

1. Irrigation as the key element of an effective regulatory factors of plant life;
2. Application of the advanced elements of technique and technology of furrow irrigation
3. Application of the advanced agronomical measures to improve soil fertility and productivity of water by mulching;
4. How to determine the date of the next irrigation and to calculate the rate of vegetative irrigation in field conditions taking into account the climatic conditions.

**In Uzbekistan**, SANIIRI studying the domestic and foreign sources for crop irrigation mode has developed an irrigation mode for cotton considering different levels of groundwater and different texture of soils of the irrigated lands. These include:

- the recommendations for the annual flushing irrigations of saline lands were developed;
- recommendations on the watering and irrigation rates for winter wheat in the Fergana valley;
- irrigation regime for high-yielding grain crops (wheat) of Russian cultivars;
- recommendations for planning cotton irrigation, when the soil is covered with plastic film;
- an irrigation mode for cotton using the method of mulching soils of sierozem zone of Fergana valley with plastic film when groundwater level is close (1-2 m);
- field research (watering test) to clarify the elements of irrigation technique in the demonstration sites of farms; - recommendations on irrigation techniques using tubular siphons.

All of the above-mentioned techniques have been tested during the adaptive research and are recommended for use.

Currently, the research team from SANIIRI, in cooperation with the Information Center, is preparing to conduct an adaptive research on 2-3 demonstration fields of the farmers' households to specify the depth of soil wetting along the length of furrows at various water volumes supplied to the furrows with different irrigation times (duration).

#### ***What did not work? (For what reasons, and what should be done to fix it)***

In addition to problems set in front of the SRI by the dissemination organizations and Information Centers, there is also a series of problems requiring research and solution. These problems are in our competence, though some of them are outside this project.

### **Unsolved problems and issues requiring consideration and solution:**

1. Unsteady water supply at the boundary of farmers' households. How can this problem be solved if the suppliers of irrigation water do not solve it? How to avoid repeated irrigations, if the water supply is unsteady? One should review the technology of water intake, water supply to the furrows and technological scheme of irrigation for various soil-reclamation conditions and different terrain slopes taking into account unsustainable water supply. The recommendations should be developed;
2. Lack of the water use plans for farmers' households – this issue is not resolved by any of the WUAs and the main obstacle is the lack of these plans in the WUA itself, as well as lack of trained personnel and weak financial security of all WUAs;
3. Absence of specific recommendations for certain parameters of irrigation technique (water intake per furrow, irrigation duration) for different soil-reclamation conditions;
4. Lack of irrigation for sandy and highly water permeable soils;
5. Absence of realistic irrigation modes confirmed by the experimental works for wheat (irrigation rates, timing of irrigation, amount of irrigation, duration of irrigation and water intake per furrow), irrigation techniques and technological scheme of irrigation for different soil-reclamation conditions and different terrain slopes;
6. Irrigation mode of various crops for lands with high groundwater level (irrigation rates, timing of irrigation, duration of irrigation, period between irrigations, irrigation interval, water intake per furrow, the amount of irrigation during the vegetation period);
7. Impact of groundwater on the feeding of plants' root system. How much water must be supplied through irrigation when the groundwater level is at different depths, such as 0,5 – 1,5 m;
8. Irrigation mode for different cultures on saline soils;
9. Standard values for deep percolation losses and losses on discharge from the field for furrow irrigation for different soil-reclamation conditions and different crops (scientific and research data and recommendations);
10. Technology for efficient use of irrigation water on lands with steep slopes;
11. The mechanism of relationship between farmers' households and the organizations responsible for planning and supplying irrigation water - this question is quite urgent in terms of legal liabilities of water supplier and recipient. Especially the farmer, as the recipient, is the most powerless subject, has the weakest link with all levels of water and agricultural hierarchy;
12. Water intake per furrow for different soil-reclamation conditions and different crops;
13. Experimental data and recommendations on every-other furrow irrigation. What are the benefits? At what conditions this method is the most effective? At what conditions this method is not applicable? (Scientific-research material and advice);
14. Evaluation of profitable crops for lands with different water availability, and various soil-reclamation conditions, taking into account ecological requirements of the terrain;
15. Requirements for crop rotation to maintain soil fertility;
16. Alternative crops that improve soil fertility;
17. Degree of influence of cultivation on water retention in the soil after watering. Optimal number of cultivation;
18. Effectiveness of water-charging irrigation, at what soil reclamation and climatic conditions a water-charging irrigation can be used, at what rates and timing;

19. Setting of the first irrigation dates for different cultures. Negative and positive effects of delaying of the first irrigation, taking into account the phases of crop development and terrain conditions. At what conditions and for what crops the first irrigation may be delayed and at what conditions and for what crops the delay is inadmissible. Account should be taken of the phases of crop development to make sure that delay in irrigation is possible or inadmissible in order not to lose productivity;
20. Low level of farmers' knowledge of irrigation and land treatment activities, and low level of legal culture, unawareness of one's own rights and responsibilities, which is particularly important in drawing up contracts with various entities, including the WUA;
21. Lack of farmers' knowledge of the rules, types and timing of fertilizer application, conducting of cultivation and other agricultural operations related to irrigation activities.

As can be seen from the above-mentioned list, not only questions of engineering and technical nature or field level questions need better understanding and solutions, but also those issues affecting the organization of work and system of interaction at a level above the field level (levels of WUA, Canal etc.).

An attempt to send the SRI partners to study the financial stability of the proposed system of knowledge transfer and dissemination, payment by farmers for advisory service and the ways of getting income from consultations was not successful. This issue was raised again during the regional seminar held in Tashkent on October 5-6, 2010, and the SRI agreed to control the execution of this element in 2011.

#### **A5.2: Research tasks related to technologies requiring more in-depth research are conveyed to relevant research institutions**

##### *What was planned?*

- To prepare proposals, based on proposals of information centers, to other research institutes regarding additional research aimed at satisfying farmers' needs.

##### *What was achieved?*

**In Kyrgyzstan**, a cooperation and search for certified scientific and technical materials (Kyrgyz. SRII, Kyrgyz NIIZ, Kyrgyz Agrarian University) as well as project materials was arranged (Research and Planning Institute "Kyrgyzsoo –Dolboor", PKTI "Vodavtomatika") to meet the farmers' requirements with regard to fundamental issues: agronomy; irrigation and water-drip systems; building and construction of water-saving inter-farm irrigation systems; water-metering devices and normalized water distribution; rational mode of crops irrigation; improvement of soil fertility and water productivity by mulching row spacing, fertilizer irrigation (fertigation) and subsurface irrigation (sub-irrigation). The obtained material has been analyzed and used as the basis for the development and writing the following idea: use of simple water-metering devices and technical facilities for normalized water distribution for rational use of irrigation water; technology of application of the vegetation irrigation mode in crop cultivation; use of subsurface irrigation/drainage.

**In Uzbekistan**, in 2010, the SRI was requested by farmers and disseminators to conduct additional research on the irrigation mode of high-yielding grain crops of Russian varieties. Then, timing, norms, multiplicity and duration of irrigation of cotton under plastic film; irrigation technique; comprehensive advice on cultivation and irrigation of crops cultivated on gravelly, sand, clay and waterlogged soils; recommendations on land reclamation and soil erosion.

### **A5.3: Viability of farmers' innovations in water management at farm/plot level is evaluated and those with potential for wide dissemination are processed and form part of ToTs**

#### *What was planned?*

- Evaluation of viability of farmers' innovations with regards to efficient irrigation water management at plot level in all countries;
- Selection of the most successful farmers' innovations for their adoption;
- Adaptation of farmers innovative technologies for wider dissemination;

#### *What was achieved?*

It should be said, that those farmers' innovations that were identified by the project within two years of work, do not yet have a large spread among a wide circle of water users. Moreover, the matter is probably not in the innovative solutions, but in the weakness of distribution system. At the level of the project area, these innovations are still at the level of discussions between project specialists and farmers. Poor work of the project executives concerning the identification of the farmers' innovative solutions should be noted. Those innovations that are listed in Section 2.3 of this report fit the article on new technologies, but prior to widespread application they have to be studied, as the farmers themselves have just recently started to use these approaches.

It should be noted that there is a number of farmers' innovative solutions used by them for many years and their effectiveness has been already proved. Regional executives should be more attentive to these issues, and study the advanced approaches of the farmers more thoroughly. The Regional Group has a certain experience in this regard, due to the project work done in its time in the SIC-ICWC. There is a set of technologies that farmers use for many years, as it is based on the experiences of many generations. These include irrigation technology for field areas (plots) and irrigation of field local areas (plots), watering with a delay to strengthen and deepen the root system, monitoring soil humidity and temperature to appoint the next irrigation, and so on. All these approaches are described and available, some of them laid in the basis of the development of new technologies that later were offered to the project partners and farmers for application.

#### *What did not work? (For what reasons, and what should be done to fix it)*

Most likely, in 2011 the Regional Group will review an action plan on identification of farmers' innovations, then will present the existing approaches and try to convince the partners to pay more attention and effort to search for innovations.

### **A5.4: Impact of the project on water productivity and yields/yield stability at field level is evaluated by farmers at plot level**

#### *What was planned?*

- Evaluation of water and land productivity, and agro-economic indicators at and out of the project areas;
- Creation of regional information database on water productivity;
- Initiation and provision of assistance in establishment and organization of the national information center which include not only project partners but also other projects and advisory services;
- Evaluation and analysis of implementation of the tasks set by each partner in view of compliance of developed recommendations with farmers' needs and problems, adoption potential of recommended technologies and their perception by trainers and farmers, availability and



perception of proposed consultations and methods of technology dissemination; [Forwarded to A6.5]

- Preparation of consolidated project report for each year and for the phase in general;
- Elaboration, in cooperation with national partners, of proposals on improvement of technical, organizational, socioeconomic and legal conditions for people and agencies making decisions.

### *What was achieved?*

Analysis of national reports shows that national partners agree in one opinion that climatic conditions of the year 2010 had a significant impact on the crops and significantly hampered the implementation of necessary measures on farms. As in previous years from 2007 to 2009, this year also was characterized by high humidity, heavy rainfall and low air temperatures in spring.

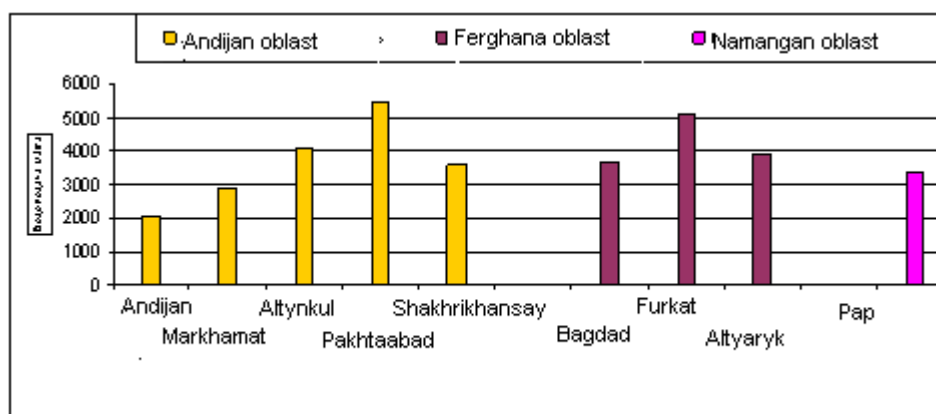
Heavy rainfall, in its turn, delayed the timing of irrigations, according to the monitoring data, on June 25, almost the entire territory of Fergana Valley has not yet had the first irrigation of cotton. This shift of the first irrigation had a certain impact on the change of the irrigation mode throughout the growing season.

High rates of precipitation have influenced the irrigation mode of wheat, most of the farms covered by the project have conducted the irrigations within the limits of 4 to 5 times with small portions, including autumn irrigation in 2009.

In this regard, the effective use of irrigation water in Tashlak, Altyaryk and Baghdad districts must be mentioned where watering and irrigation mode of wheat were conducted considering the high level of groundwater and precipitation (Fig. 5.4.1). Relatively high values of water supply, more than 6,000 m<sup>3</sup>/ha in Pakhtaabad district is explained by high permeability of soils in this zone. In usual years, the water supply in this area reaches more than 10 thousand m<sup>3</sup>/ha.

With respect to cotton, one should say that in all areas covered by the project the irrigations were controlled and done taking into account the precipitation and moisture in the soil almost up to July. High humidity has influenced the decrease in number of irrigations and reduced irrigation rates during the complete growing season of crops. In its turn, high humidity affected the growth and development of crops and in this regard, it was important to maintain optimal water mode to ensure sufficient thermal mode for crops development. High humidity and rainfall have influenced the lag in the development of cotton up to 20 days in the first three months of the growing season in all zones of the region. The situation began to normalize by mid-July, after increasing the temperature. In such circumstances, it is important in order to preserve the harvest to conduct regular irrigation in conjunction with the cultivation of land to control moisture of the soil. Many farmers were disoriented in such difficult conditions and have conducted irrigations without taking into account real needs of the crops under conditions of high humidity of soil and air.

**Fig 5.4.1 Average value of wheat irrigation rates by farms**



Assessment of use of irrigation water when growing cotton which was undertaken on demonstration sites of Uzbekistan shows that some farms used irrigation water by taking into account the climatic conditions during the year, and their irrigation regime during the year turned out to be moderate (Table 8). The major factor behind the reduction in the number of irrigations was the postponement of the first irrigation and the use of soil moisture reserves before the first irrigation and between the first and the second irrigations. In most zones covered by the project, irrigations did not take place until July, and in the whole vegetation period, on the average, there were 3 to 5 irrigations with water standard portions at 700-800 m<sup>3</sup>/ha which is lower than the earlier recommended rate of 1000-2000 m<sup>3</sup>/ha.

**Table 8. Assessment of the irrigation water use and its productivity at demonstration fields of Uzbekistan**

Region	District	Number of irrigations	Specific water supply (brutto), m <sup>3</sup> /ha	Total discharge, m <sup>3</sup> /ha	Productivity, kg/m <sup>3</sup>
<b>Andijan</b>	Andijan	4	2380	295	2.01
	Pakhtaabad	7	6459	1084	0.66
	Markhamat	5	4194	688	1.12
	Altynkul	4	3900	541	1.09
	Shakhrikhan	4	4393	795	1
<b>Ferghana</b>	Kuva	4	4132	555	1.12
	Tashlak	4	4132	557	1.12
	Furkat	3	2995	592	1.66
	Altyarik	5	4992	605	0.89
	Bagdad	2	2832	638	1.66
<b>Namangan</b>	Narin	4	4812	924	0.81
	Pap	4	3946	651	1.01
	Namangan	5	5102	612	0.74

The assessment of the irrigation water use undertaken on demonstration sites shows that some farms used the irrigation water by taking into account the climatic conditions during the year, and the irrigation mode during the year turned out to be moderate with respect to the allowable irrigation rates for each condition.

The situation at the demonstration fields in Sogd region with irrigation of cotton was rather complex with deviation from standards both in terms of timing and irrigation rates. The irrigation rates for the whole vegetation period are not just low but much lower than the recommended rates on average by 1628 m<sup>3</sup>/ha, and this is below the average irrigation rate of the region by 4592 m<sup>3</sup>/ha, which results in water saving. As for losses from the irrigation fields, one may say that in most cases, losses are below the standard losses and the percentage of discharge was in the range of 2-13%, which proves the high efficiency of irrigation water use in the field (Table 9).

On expert assessments, a drop in **cotton** productivity was registered in all regions and at most farms. In Tajikistan, despite the best efforts made by the project consultants, a drop in cotton productivity was registered on demonstrations fields: in J.Rasulov district – by 25%, Zafarabad – by 22% and Kanibadam – by 6 %.

**Table 9. Assessment of irrigation water use in Sogd region**

District	Demonstration field	Number of irrigations		Specific water supply (brutto), m3/ha		Total discharge, m3/ha		Irrigation efficiency	
		2009	2010	2009	2010	2009	2010	2009	2010
J. Rasulov	Burikurmas	6	8	6484	8188	1018	1086	0.84	0.87
Spitamen	Shark	7	5	7425	5476	1373	753	0.81	0.86
Zafarobod	Navbahor	5	6	4720	5807	530	314	0.68	0.95
Mastcha	Amakjon	3	3	2330	3068	284	62	1.08	0.98
Kanibadam	Khimoyatbonu	6	6	5490	4871	688	435	0.87	0.91

Assessment of Water Productivity on cotton in Sogd region is presented in Table 10.

**Table 10. Assessment of Water Productivity in Sogd region (Cotton)**

Region	District	Demonstration field	Cotton		
			Yield, c/ga	Irrigation rate (actual), m3/ga	Productivity, kg/m3
Sogd	J. Rasulov	Burikurmas	25.8	7102.6	0.36
	Spitamen	Shark	28.0	4723.6	0.51
	Zafarobod	Navbahor	32	5493	0.45
	Mastcha	Amakjon	41.5	3005	1.37
	Kanibadam	Khimoyatbonu	37.5	4436	0.85

The difficult climatic conditions of this year predetermined the water supply and the mode of irrigation of agricultural crops. Unfortunately, it is not always possible to tackle the issue due to objective reasons. For example, rain showers harmed early sowing (May) of onions in Kyrgyzstan and it was not possible to undertake any measures. Other vegetables and gourds have suffered to a lesser extent (Table 11).

**Table 11. Assessment of vegetation irrigations on demonstration sites of Osh region**

District	WUA	Crop	Number of irrigations	Specific water supply (brutto), m3/ha	Specific water supply (netto), m3/ha	Losses in discharge, m3/ga	Productivity, kg/m3
Aravan	Kyzyl Abad	Cotton	4	4900	3750	1150	0.76
		Corn	5	5388	4457	931	2
	Moviy Daryo	Vegetables	4	3293	2614	679	10
Karasu	Chomo	Corn	6	4200	3760	440	1.7
		Sunflower	2	1210	1160	50	2.5
		Sunflower	2	1310	1260	50	2.5
	Maz Aykal	Onions	6	4744	3602	1142	8.2
		Pumpkin	4	8270	6815	1455	6

		Cucumbers	3	8370	6760	1610	2.4
		Garlic	3	7700	6100	1600	0.97
		Vegetables	4	7677	5574	2093	2.2
		Lucerne	3	6450	4520	1930	5.4
Uzgen	Karool Dostuk	Lucerne	2	1400			6.6
		Corn	4	2800	2270	530	3.5
		Vegetables	9	7467			4.1
Karakulja	Kashkajol	Corn	4	5200	4800	40	0.76

The assessment of irrigation water use shows that the irrigation mode was prescribed by taking into account the weather conditions. It should be noted that the organization of water distribution system based on registration of water used by 15 pilot outlets in Aravan, Karasu and Uzgen districts was a key achievement of irrigation measures; under the system, water charges are based on volume of the irrigation water used with distribution of charges between farmers by the leader of an outlet. On results obtained we may make a conclusion that the farmers accepted completely the mechanism proposed by the project and were convinced in its efficiency.

The assessment of irrigation water use shows that, in general for all demonstration sites the irrigation rates were moderate. The weather conditions were taken into account when making an irrigation decision on all cultivated crops. The unproductive discharges on some crops exceed the standard indicators and account for 30-35% of water supply. The largest losses of water discharges are registered during the irrigation of vegetable crops.

#### *What did not work? (For what reasons, and what should be done to fix it)*

Assessment of efficiency of irrigation water use and its productivity shows that farmers so far have no clear idea about the amount of water used. In Uzbekistan and Tajikistan, there are no sufficient arguments to convince farmers to shift to rational use of irrigation water. Although Kyrgyzstan already has the necessary mechanism, the water saving procedure has not been developed sufficiently and therefore cannot be proposed to farmers. The approaches backed by calculations need to be developed; perhaps, in the conditions of Uzbekistan, the approaches should be combined with land treatment techniques. In the conditions of Tajikistan and Kyrgyzstan, where farmers are keen to save on water charges and minimize water use, the farmers should be offered the irrigation process flows and technologies that allow reducing the amount of water used for irrigation.

### **3.6. Main Achievements for ER6**

**ER6: Knowledge on technologies to improve water productivity is anchored within national partners, a system that continuously assesses farmers' needs and elaborates corresponding extension messages is established; and dissemination of technologies improving water management at farm/plot level is enlarged.**

**A6.1: New innovation cycles are implemented on a continuous basis, both to ameliorate already tested innovations and to disseminate further technologies**

#### **First experimental innovation cycle**

According to project innovation cycle first part of planned activities **spring summer 2009** included the organization of works based on four main stages:

- comparative farmers' problems and needs assessment conducted by partners on the basis of regular monitoring of ER2 A2.1-A2.2;
- evaluation of technologies transferred by the project based on the adoption potential in terms of project objects and area ER 2, A.2.3-A2.4;
- Selection of the technologies that require completion and submission to RI ER 2, A2.4;
- Selection of problems and needs of farmer's not provided with the project technologies ER2 A2.1-A2.2.

The second part of the first cycle is the continuation of the following steps at the same time it does not omit the consideration of those issues that were not completed or require constant consideration on each segment of the first part of the innovation cycle, **summer, autumn and winter 2009, winter, spring and summer 2010:**

- Translation of the technologies into farmer-friendly language and development of educational and dissemination materials on their basis ER 2, A2.4, ER3 A3.2-A3.4
- Training of the trainers in technologies with the highest potential for adoption ER3 A3.2-A3.4;
- Dissemination of the project proposed technologies accepted by partners ER4 A4.1-A4.2;

### **Second innovation cycle**

This cycle consists of constant monitoring of farms' needs combined with dissemination and highlighting of the issues that require research or completion by RI as well as includes identifying of new technologies and proposals to solve those issues that previously did not have technological support **spring, summer, fall 2010, winter, spring, summer 2011:**

- regular needs assessment combined with evaluation of dissemination ER4, A4.3;
- Farmers' needs assessment and their provision with the existing technologies ER 2, A.2.2,A2.4,
- selection of needs and problems not supported by technologies and formulation of the requirements to RI on that basis to assess and identify technologies and finalize existing technologies ER 2, A.2.2,A2.4, ER5, A5.2;
- Training of the trainers but including the additional new technologies (new cycle) and consolidation of old materials if necessary ER3 A3.2-A3.4;
- Identification of farmers' innovations to improve productivity ER2 A2.3, ER5, A54;
- dissemination to other non-project areas on their request ER4 A4.1-A4.2, ER6, A6.2;
- search and analysis of existing advanced technologies on the basis of activities by other projects or organizations ER5, A5.1, A5.2;
- validation of the existing advanced technologies on project demo fields ER5, A5.2;
- transfer of the project approaches, technologies and ground works to other projects and interested organizations in order to expand the project scope ER6, A6.3, A6.4.

### **Third innovation cycle**

This innovation cycle is most important from sustainability point of view of whole innovation system proposed by project. If in two first two cycles the first step is assessment of farmers' needs and problems and then technology and only after that the research follows as supplement to main cycle activities. This cycle enhances whole system of innovation system by adoption of existing technologies, involving disseminators as task originator; their joint review with RI and close collaboration with IC on technology adoption; close contact with disseminators on training

materials preparation in collaboration with RI and with its participation. This uses the relationship of RI and IC with other organizations; their involvement to solution of existing problems and issues and disseminators' involvement with other projects and areas in order to expand dissemination.

## **A6.2: Regular impact assessments at the level of disseminators and farmers, performed outside pilot areas**

### *What was planned?*

- Development and implementation, at the level of disseminators and farmers, of approaches to assess project impact outside of pilot areas.
- Development of M&E criteria of project impact, development of ToR and conducting quotation to (tendering for) identify third party to carry out the assessment.

### *What was achieved?*

In the Uzbek part of the project, the project experts have divided the administrative region into three zones to carry out more efficient analysis and assessment of situation on soil-reclamation, hydro-economic and climatic characteristics – historically irrigated, newly irrigated and *adir* lands and requested a scientific and research institute to help work out recommendations by taking into account their specificities. Such approach enables to provide targeted recommendations to farmers that are relevant for their specific territories. Broad coverage of farms by the project attracted the attention of not only farmers from the project zone but of farmers from outside of the project zone as well. Experts from the WUA have also shown great interest. Experts from the WUA wish to be invited to trainings held by the WPI-PL Project on various issues ranging from water issues to land treatment activities. Experts from WUAs, both WUAs included in the project and WUAs from outside the project zone, have attended trainings held for farmers in Tajikistan and Uzbekistan. In the Uzbek part of the project, apart from trainings arranged for farmers who are within the project zone, the region-level project officers have held trainings for farmers and experts of the districts at the request of administration of the districts using meetings held by Khokimiyats with all rural district water-management structures of the district, including farmers. In Fergana region, the Khokims of districts hold, on a weekly basis, meetings of the farmers, to which they invite the aksakals (experienced agronomists and veterans of agriculture) to help farmers to organize properly the agricultural production. The project experts used these meetings to disseminate the approaches developed and to directly communicate with the farmers from the entire district. At these meetings of the Khokimiyats the issues considered by the projects and solutions and recommendations to solve the currently existing problems aroused great interest among both farmers and aksakals as well as the Khokims. At times, the meetings discussed the issues of raising productivity and efficiency of water use, which were raised by the project experts. This year, more than 3200 bulletins were disseminated through these meetings and interaction with the Khokimiyats in Fergana region alone.

Other projects have also shown interest in the Project. Experts from USAID and GTZ projects visited our demonstration fields where they were presented all our expertise and approaches. On this basis and taking into account the great interest shown by other projects to the results of the work, the experts from Fergana region proposed to arrange “basic farmers’ schools” at the base the WUAs to demonstrate the achievements, approaches and consulting and training methods of the WPI-PL project.

At the start of the RESP project, which operates in seven regions of Uzbekistan, the WPI-PL project transferred 19 recommendations for efficient use of irrigation water and land treatment

issues which were developed in the framework of the project. Monitoring forms to register all indicators of the irrigation water use, irrigation technologies, soil moisture and all agro-and-economic indicators were transferred to monitor the demonstration fields.

In Kyrgyzstan, the recommendations developed under the project were tested in the Chui valley with the soil and climate conditions similar to those in Osh. In Chui area, the farmers have showed great interest to various kinds of technologies and work principles proposed by the WPI-PL project. The approach of the project to irrigation water management was especially interesting for farmers with small plots with water distribution by the leader of outlet and payment for actual water consumption. This approach eliminates situations that create conflicts between farmers and organizes water distribution between farmers' fields within the outlet. The water is distributed based on composition of areas under crop and the volume at the head of outlet. The leader under the acceptance and transfer certificate receives water from the WUA via outlet, which he measures together with hydrometer of WUA. The acceptance certificate registers the measured consumption, date and time. Then the leader of outlet calculates what area can be provided with water using the water consumption at the head of outlet. For this purpose he calculates what number of simultaneously irrigated furrows the received water can be distributed to. There are contractual relations with the leaders of outlets within a WUA. Unfortunately, currently the interfarm network is uncontrolled and this is the main reason for all problems related with water use at the level of farms with small plots and inefficient WUA. This method allows controlling the system of water supply and water distribution between farmers' fields and save more water as a farmer is interested to save his money. Among other things, we managed to eliminate disputes with regard to water distribution.

In addition to this approach, the project proposed technologies for efficient use of irrigation water at field level that are based on: rationed water supply to irrigation furrows; splitting of the irrigated field across a slope for water retention and its better infiltration; technique and technology of irrigation through a furrow to improve the quality of irrigation and save irrigation water; application of basic water-metering devices (*Thomson* and *Chipoletti* or spillways) and technical means (polyethylene pipes and used mineral water bottles or polyethylene napkins) for rationed water supply in order to ensure rational use of irrigation water. In addition to this, in Kyrgyzstan, the WPI-PL Project has cooperated with the SEP project since 2008. In 2009, the WPI-PL Project transferred to the SEP Project 19 recommendations for the efficient use of irrigation water and land treatment measures. The forms with hydro-and-agro-indicators on the demonstration sites and forms for monitoring of farms were transferred to conduct monitoring.

In accordance with the project, a third party was offered to assess the results and achievements of the project. As satisfaction of farmers is an important indicator of achievements, the regional group thought that it was necessary to integrate the general assessment of the project by a third party with the assessments of farmers' satisfaction with the technologies offered. Terms of Reference were developed for a third party to conduct monitoring, and 2<sup>nd</sup> and 3<sup>rd</sup> assessments on Project TaRAS 4.2 and 6.2 to assess the level of satisfaction of farmers and acceptance of technologies offered by the project.

The project selected Oasis, LLC., headed by Mr. Dale Henry, as a third party and developed a joint work plan. The project supplied project materials, contact details of partners and methods for carrying out such assessments that were recommended by the SHARS consultants at the time of developing the Project plan. Sampling and assessment tools were developed. Comments from Chris Morger are available. In addition, the project is in constant touch with the SEP project Leader (Helvetas, Kyrgyzstan) Mrs Lidia Pluss with regards to a third party assessment of project's achievements.

### *What did not work? (For what reasons, and what should be done to fix it)*

So far, the inquiries to get the project's experience according to coverage in the media were very few, and even though there was a great deal of interest of users to the project's experience there is no system and a mechanism in place to transfer it to a larger circle of users. In this context, most probably, it would be efficient to prepare proposals for decision makers at the level of local administration and ministries so that they order to arrange a dissemination system for zones beyond the project zone. An example can be the decisions made by ministries in Kyrgyzstan to use the experience of the project in other regions, and the other example is by the district Khokims in Uzbekistan to transfer the project experience at the district level.

Unfortunately, the budget proposal provided by Oasis, LLC, to assess the satisfaction level and acceptance of technologies by farmers was too high, \$26,000, which is beyond our preliminary estimation, which was agreed upon around \$10,00 for all the three countries. Now the project should start negotiations with SEP, which was also supported by Chris Morger, to assess each other's projects with minimal cost.

### **A6.4: Possible inclusion of additional project partners (at local level) and establishment of links with other donors to further boost dissemination beyond the reach of the project**

#### *What was planned?*

- Involvement of additional partners to achieve specific tasks; Assisting the partners in establishment of 'councils' for regular meetings to which other stakeholders will be invited: Khokimiyats, Agroproms, agricultural organizations and NGOs for discussing farmers' topical problems.

#### *What was achieved?*

Working relations and connections were developed with the following partners/projects:

#### *In Kyrgyzstan*

- The Project SEP (efficient water use), Helvetas. The project started in 2009 in three southern regions of Kyrgyzstan. The project objective is to improve efficiency of irrigation water use at farmers' fields and raise the productivity of agricultural crops of farmers, improve the living standard of rural residents. A tender among the consulting firms and NGOs who provide consulting services to farmers in the area of agriculture was issued to implement the project. The bidders of the tender themselves (and not the project) proposed various measures with regard to the efficient use of irrigation water at farms, enhancing knowledge of farmers in irrigation mode for various crops, easing tensions between water users and the WUA members. Because they know well the problems faced by the farmers and ways to solve them, six partners were selected and given grants to implement the project. The partners established a farmers' group for training purposes.
- The DLC Project (Development of Local Market), Helvetas. The project objective is to create a chain between agricultural producers and processing companies. The project operates in the south of the country. Agreements are prepared between the agricultural producers of tomatoes, cucumbers and processing companies for supply and purchase of produce. The project works with partner organizations. Trainers of partner organizations establish a group of farmers to train them to grow tomatoes and cucumbers. The training is held during the vegetation period using the scheme of Farmers Field School (FFS), i.e., with fixed list of attendees (15-20 persons), regular trainings and advice on each technology and measures to grow the plants



(preparation of field, ploughing, preparation of field to planting, preparation of hot frame, replanting irrigation, fertilizers, plant protection, harvesting, packaging, supply to processing company etc.), from planting to selling the produce. Advantages: one may acquire experience in establishing and running a FFS.

- The WUASP Project (USAID). The project objective was to establish and strengthen WUA, support and improve the irrigation and drainage system. The Program works in Kyrgyzstan and Tajikistan. WUASP assists WUAs in rehabilitation of channels and drainage systems, improvement of water distribution, easing tensions between farmers and WUA. Advantages: the project experts know well the nature of tensions between WUA and water users and ways to solve them.

#### *In Tajikistan*

- The SENAS Project, jointly with OO SOF, Welthungerhilfe, OO Saodat, KIS and ZOKI Osh Branch (Kyrgyzstan) arranged 3-day practical training on the topic of *Efficient Water Use at Field Level*, where the project partners made presentations to share experience on water saving technologies of surface irrigation, selection of technological scheme of irrigation, technology of even distribution of water on furrows, negative impact of improper irrigation, use of compost/organic manure and mulching, devices to measure irrigation water and held a field day to determine the water consumption at channels using the bob method;
- The CECI Project jointly with partners held training on *Ways to Accumulate and Save Moisture in Soil* and with assistance of Phillip Hitchman, the expert from Canada, on *Application of Biological Method of Plant Protection* followed by a field day.

#### *In Uzbekistan*

- On request of the RESP-2 Project, partners in Uzbekistan arranged a seminar for participants of the RESP-2 Project with trainings at demonstration sites and shared their experience. In addition, field visits were arranged for the representatives of GTZ Projects: Crossborder Water Resources Management in the Zarafshan River Valley, IWRM-Ferghana; and the JICA Project Support to Development of WUAs in the RUz.

The projects and partners in three countries also managed to establish and launch Coordination Councils consisting of organizations interested (partners, agroproms, Khokimiyats, and other cooperating organizations and projects) in development of farms, especially in raising their productivity. This platform created conditions for innovative partnership, discussing a broad list of issues, testing new ideas and technologies proposed by the project and involving all stakeholders in solving the practical issues.

This year the project started cooperation with Scientific Research Institute of Cotton Selection and Seedage (UzNISSH) and Institute of Energetics and Automation of Academy of Sciences of the Republic of Uzbekistan with the Laboratory “High voltage technique”. These two institutes proposed very interesting proposals on new technologies of pre-sowing seed treatment and new cotton varieties. The Institute of Cotton Selection presented a hybrid cotton variety which is based on wild Mexican variety. High crop capacity, high salinity resistance and drought resistance differs this variety from the existing ones. The Laboratory “High voltage technique” (author A.Kudratullaev) developed the know-how of seeds treatment with high voltage that allows to sort, stimulate growing of crops and increase growing power of seeds. Within the framework of the project, adaptation of these two technologies was conducted at the field of the farm “Dildiyo Turgunboy” in Tashlak rayon, Fergana oblast. The results of the experimental field showed that seeds treatment with high voltage indeed influenced and accelerated the cotton growing, the cotton treated with the new technology was cultivated with two irrigations. Also, the new variety from the Institute of Selection showed good results comparing with local varieties that were grown in the

neighboring plots. It differs with high drought resistance and resistance to diseases. This new variety matured 15-20 days earlier than the traditional varieties

### *What did not work? (For what reasons, and what should be done to fix it)*

The attempt to create the atmosphere of closer contact and tools for close cooperation between the project partners and other projects and institutes has not worked very effectively. In 2011, the general discussion of all the problematic issues and new technologies with compulsory participation of new partners should be organized at oblast and republic level. In Uzbekistan, the new technologies from the Institute of Selection and the Laboratory “High voltage technique” will be proposed to be used at all the demonstration plots of the project.

## **A6.5: Yearly survey among project partners**

### *What was planned?*

- Develop the approaches which makes possible to carry out operational assessment of performance of each partner and assist partners in developing single strategy to implement project goals and analysis of information;
- To develop the methods to evaluate efficiency of each partner;
- To conduct yearly survey among partners;
- Evaluation and analysis of implementation of the tasks set by each partner in view of compliance of developed recommendations with farmers’ needs and problems, adoption potential of recommended technologies and their perception by trainers and farmers, availability and perception of proposed consultations and methods of technology dissemination.

### *What was achieved and what did not work? (For what reasons, and what should be done to fix it)?*

On results of two years of project work and especially 2010 we may draw conclusion that the efficiency of work of partners is improving thanks to establishment of National Coordination Councils which discuss, on monthly basis, each partner’s activities, summarize and bring to common denominator the issues considered, determine common goal and joint efforts to undertake the work with task sharing between partners. This initiative was undertaken in 2009 by Kyrgyz team, taken up and developed by Tajik team and accepted by Uzbek team. In this respect, the project achieved certain success from viewpoint of the adopted national strategy in each country.

As for activities of the each partner, it should be noted that they differ across countries and there is no a unified approach. It should be noted that the work of disseminating organization and research institutions is most successful. In Kyrgyzstan, the Department of Support to WUA organized the work among farmers on setting up a system of water supply management with assistance from the leaders of outlet. It can be concluded that the strategy of work of the Department is more successful than in other organizations in both Kyrgyzstan and Tajikistan and Uzbekistan. And the success of this strategy results from the technology and approach that they present and disseminate among farmers. If there is a particular technology in place in which farmers are interested, then it is easier to disseminate such technology. Things are more complicated with technologies in which farmers fail to see a benefit for them, as they do not want indirect effects but direct benefits. Therefore, for such organizations as Osh RAS, Zarzamin, IAC it is harder to gain the full confidence of farmers as they work to expand the expertise of farmers, efficient and productive use of water and lands, where results and benefits to farmers are less evident compared with organization of water supply by the Department for Support to WUA. In this respect, the project experiences certain issues with regard to its partners. Not all trainers mastered interactive teaching

methods, while organizations have no efficient methods of working with farmers, who could teach trainers. Technological materials are insufficiently developed. These materials could have been presented to farmers in a form convenient to farmers. Demonstration sites do not fully meet the requirements to demonstration fields employing perfect technologies and it is not possible to show clearly the advantages of a certain approach or method to farmers. It should be noted that the Uzbek part of the project arrives to the objectives of demonstration sites through created models of different types of hydrometric facilities. Equipping the farms with hydrometric stations in one WUA (model WUA) will form a basis for improvement and further development of demonstration sites for farmers.

Information centers as a new structure so far fails to prove their worth and hardly manage to carry out their duties. Only by mid 2010, one could see some difference and movements in all information centers. The reason is, firstly, the poor expertise and, secondly, insufficient understanding of Osh RAS imposed on these centers. The poor expertise of trainers is the weak point of all these centers. They now manage to assess problems and present them to research institutes and process materials. However, they are less prepared to train the trainers and decide which methods are good to ensure that the trainers deal with farmers in a professional manner. The regional group suggested arranging a series of trainings for trainers in interactive methods of dealing with farmers. In addition, trainings are needed for experts of information centers so that they have an idea about their role and the work sequence.

Research-and-scientific institutes, despite all their efforts, do not assess the issues and needs of farms, shifting this work on information centers and dissemination organizations. The project, represented by information centers and dissemination organizations, has received several useful recommendations from the institutes that are being successfully implemented. However, if the institutes will not research issues and needs of the farmers they will not be able to fine-tune the irrigation technologies at the field level. E.g., so far the institutes failed to present water consumption for various soils and slopes although, over the years, they have been asked to do so many times. No specific recommendations on irrigation mode for lands with high level of groundwater, the amount of feeding of root zone from groundwater under various groundwater occurrences and mode were provided.

#### **4. PROJECT MANAGEMENT AND BUDGET EXECUTION**

##### **4.1 Project Management and Cooperation**

The WPI-PL Project was headed by two Project Leaders, Sh. Mukhamedjanov (from SIC) and Herat Mantritolaki (from IWMI). Due to transfer of Dr Mantri to the Head Office of IWMI starting from May 1<sup>st</sup>, 2010, Prof. Mohan Reddy Junna has been the Project Co-Leader from IWMI. Table 12 represents the staff list of regional group who were engaged in the project. The project experts closely cooperated with region and national coordinators as well as representatives of each partner on issues of information flow and in solving the project's current organizational issues.

**Table 12. Regional Technical Staff of SIC and IWMI**

#	Full name	Position
1	Prof. Mohan Reddy Junna	Project Co-Director (Leader) from 1.05.2010
2	Shukhrat Mukhamedjanov, D.Sc.	Project Co-Director (Leader)
3	Larisa Averina, D.Sc.	Water Management Expert, Hydro-Technician
4	Jusipbek Kazbekov, D.Sc.	Water Management Expert
5	Alfiya Khaliullina	Office Manager/ Translator
6	Islom Rusiev	Regional Technician
7	Rustam Sagdullaev	Regional Technician
8	Ismail Ganiev	Regional Expert dealing with region-level responsible persons
9	Oytire Anarbekov	IWMI Economist
10	Kahramon Jumaboev	IWMI Irrigation specialist
11	Davron Eshmmuradov	IWMI Consultant (GIS and water management specialist)
12	Bahtiyar Matyakubov	IWMI consultant

## ANNEX 1. TRAININGS AND WORKSHOPS

№	Training and workshop topic	Date	Place	Country, Province	Organization	Event	Participants
1.	Determination of furrow water flow	April 2010	Osh	Osh, Kyrgyzstan	Osh SRD	ToT	20
2.	Determination of furrow water flow	April 2010	Osh	Osh, Kyrgyzstan	Osh SRD	ToT	20
3.	Determination of furrow water flow	April 2010	Osh	Osh, Kyrgyzstan	Osh SRD	ToT	20
4.	Water accounting	May 2010	Osh	Osh, Kyrgyzstan	Osh SRD	ToT	16
5.	Water accounting	May 2010	Osh	Osh, Kyrgyzstan	Osh SRD	ToT	15
6.	Water accounting	May 2010	Osh	Osh, Kyrgyzstan	Osh SRD	ToT	15
7.	Determination of the next irrigation date	December 2010	Osh	Osh, Kyrgyzstan	Osh SRD	ToT	32
8.	Determination of the next irrigation date	December 2010	Osh	Osh, Kyrgyzstan	Osh SRD	ToT	31
9.	Determination of the next irrigation date	December 2010	Osh	Osh, Kyrgyzstan	Osh SRD	ToT	31
10.	Irrigation regime for main crops. Water use plan development in WUA, on branch and farm.	1.03.2010.	Osh	Osh, Kyrgyzstan	TAIC/ZOKI	ToT	17
11.	Basics of marketing and farm economics. Assessing the agricultural products market. What is FFS? FFS goals and objectives.	3.04.2010.	Osh	Osh, Kyrgyzstan	TAIC/ZOKI	ToT	18
12.	Water saving irrigation technologies. Maintenance of water use records book	17.05.2010.	Osh	Osh, Kyrgyzstan	TAIC/ZOKI	ToT	19
13.	Organizing and development of Field Farmers' school	20.11.2010.	Osh	Osh, Kyrgyzstan	TAIC/ZOKI	ToT	17
14.	Irrigation regime for main crops.	1 March, 2010	Osh	Osh, Kyrgyzstan	TAIC/ZOKI and Kyrgyz SRI	ToT	16
15.	Basics of marketing and farm economics.	3-April 2010	Osh	Osh, Kyrgyzstan	TAIC/ZOKI and	ToT	15

<b>№</b>	<b>Training and workshop topic</b>	<b>Date</b>	<b>Place</b>	<b>Country, Province</b>	<b>Organization</b>	<b>Event</b>	<b>Participants</b>
					Kyrgyz SRI		
16.	Water saving irrigation technologies. Determining needed field water flow, irrigation rate and duration.	17-May 2010	Osh	Osh, Kyrgyzstan	TAIC/ZOKI and Kyrgyz SRI	ToT	19
17.	Integrated production management	20–November 2010	Osh	Osh, Kyrgyzstan	TAIC/ZOKI and Kyrgyz SRI	ToT	21
18.	Fall/winter activities: The main tillage Watering, cleaning up weeds and crop residues, application of organic and mineral fertilizers, plowing.	November	Sogd	Sogd, Tajikistan	IAC and Zarzamin	ToT	13
19.	Crop pattern. Crop rotation.	December	Sogd	Sogd, Tajikistan	IAC and Zarzamin	ToT	32
20.	Training of trainers on filling the monitoring form on execution of technological chart on cotton” developed by Giprovodkhoz and RDC “SOF”	December	Sogd	Sogd, Tajikistan	IAC and Zarzamin	ToT	19
21.	Preparation of the irrigation network for the new irrigation season	January	Sogd	Sogd, Tajikistan	IAC and Zarzamin	ToT	15
22.	Water use plan development	February	Sogd	Sogd, Tajikistan	IAC and Zarzamin	ToT	16
23.	Irrigation regimes	March	Sogd	Sogd, Tajikistan	IAC and Zarzamin	ToT	11
24.	WUA establishment and operation, legal and financial aspects of WUA. The relationship between WUA and farmers	November - March	Sogd	Sogd, Tajikistan	IAC and Zarzamin	2 trainings per month (total of 10 trainings )	12

<b>№</b>	<b>Training and workshop topic</b>	<b>Date</b>	<b>Place</b>	<b>Country, Province</b>	<b>Organization</b>	<b>Event</b>	<b>Participants</b>
25.	Conducting roundtable on issues of WUA establishment and operation in each project district. The relationship between WUA and farmers	November-March	Sogd	Sogd, Tajikistan	IAC and Zarzamin	In each district (Total of 6 roundtables, following the training)	13
26.	Using a manual on the best irrigation scheme ( ? ) developed by Giprovodhozom	March	Sogd	Sogd, Tajikistan	IAC and Zarzamin	ToT	14
27.	Using manual developed by Giprovodkhoz on determining the irrigation duration depending on irrigation norm	March	Sogd	Sogd, Tajikistan	IAC and Zarzamin	ToT	10
28.	Organizing water accounting and volumetric payment	March	Sogd	Sogd, Tajikistan	IAC and Zarzamin	Field days on demo plots	43
29.	Pre-plant preparation of demo fields (leveling, watering, harrowing)	March	Sogd	Sogd, Tajikistan	IAC and Zarzamin	On-job consultations	35
30.	Business planning in DF	November-February	Sogd	Sogd, Tajikistan	IAC and Zarzamin	Trainers dessiminators, farmers	12
31.	Gender and Water	December, January, February, March	Sogd	Sogd, Tajikistan	IAC and Zarzamin	ToT	14
32.	Conducting annual survey on gender issues (2 questionnaires)	November	Sogd	Sogd, Tajikistan	IAC and Zarzamin	Survey, interview	16
33.	Conduction annual famers' needs assessment	November, December	Sogd	Sogd, Tajikistan	IAC and Zarzamin	Survey, interview	18
34.	Monthly monitoring of new technologies application	Monthly	Sogd	Sogd, Tajikistan	IAC and Zarzamin	Survey, interview	19
35.	Monitoring of cotton flow chart execution	Monthly	Sogd	Sogd, Tajikistan	IAC and Zarzamin	Survey, interview	17

<b>№</b>	<b>Training and workshop topic</b>	<b>Date</b>	<b>Place</b>	<b>Country, Province</b>	<b>Organization</b>	<b>Event</b>	<b>Participants</b>
36.	Demo fields monitoring	Monthly	Sogd	Sogd, Tajikistan	IAC and Zarzamin	Monitoring	16
37.	Monitoring of farmers' trainings	Monthly	Sogd	Sogd, Tajikistan	IAC and Zarzamin	Survey	18
38.	Water use plan development and contracting.	26.04.2010	Spitomenskiy	Sogd, Tajikistan	IAC	Workshops	19
39.	Water use plan development and contracting.	25.04.2010	J. Rasulovskiy	Sogd, Tajikistan	IAC	Workshops	26
40.	Water use plan development and contracting.	23.04.2010	B. Gafurovskiy	Sogd, Tajikistan	IAC	Workshops	16
41.	Organization and maintenance of water accounting. Irrigation flow chart	26.05.2010	Spitomenskiy	Sogd, Tajikistan	IAC	Workshops	25
42.	Organization and maintenance of water accounting. Irrigation flow chart	24.05.2010	J. Rasulovskiy	Sogd, Tajikistan	IAC	Workshops	22
43.	Organization and maintenance of water accounting. Irrigation flow chart	25.05.2010	B. Gafurovskiy	Sogd, Tajikistan	IAC	Workshops	23
44.	Crop irrigation regimes. Pest and disease control	16.06.2010	Spitomenskiy	Sogd, Tajikistan	IAC	Workshops	26
45.	Crop irrigation regimes. Pest and disease control	14.06.2010	J. Rasulovskiy	Sogd, Tajikistan	IAC	Workshops	31
46.	Crop irrigation regimes. Pest and disease control	15.06.2010	B. Gafurovskiy	Sogd, Tajikistan	IAC	Workshops	22
47.	Farming practices. Terms, rates and methods of application of organic and mineral fertilizers. Irrigation water saving.	30.06.2010	Spitomenskiy	Sogd, Tajikistan	IAC	Workshops	25
48.	Farming practices. Terms, rates and methods of application of organic and mineral fertilizers. Irrigation water saving.	29.06.2010	J. Rasulovskiy	Sogd, Tajikistan	IAC	Workshops	36
49.	Farming practices. Terms, rates and methods of application of organic and mineral fertilizers.	28.06.2010	B. Gafurovskiy	Sogd, Tajikistan	IAC	Workshops	21



<b>№</b>	<b>Training and workshop topic</b>	<b>Date</b>	<b>Place</b>	<b>Country, Province</b>	<b>Organization</b>	<b>Event</b>	<b>Participants</b>
	Irrigation water saving.						
50.	Pest and disease control. Farming practices. Terms, rates and methods of application of organic and mineral fertilizers.	27.07.2010	Spitomenskiy	Sogd, Tajikistan	IAC	Workshops	25
51.	Pest and disease control. Farming practices. Terms, rates and methods of application of organic and mineral fertilizers.	28.07.2010	J. Rasulovskiy	Sogd, Tajikistan	IAC	Workshops	31
52.	Pest and disease control. Farming practices. Terms, rates and methods of application of organic and mineral fertilizers.	29.07.2010	B. Gafurovskiy	Sogd, Tajikistan	IAC	Workshops	19
53.	Legal regulations and rules. Farm taxation	20.09.2010	Spitomenskiy	Sogd, Tajikistan	IAC	Workshops	27
54.	Legal regulations and rules. Farm taxation	21.09.2010	J. Rasulovskiy	Sogd, Tajikistan	IAC	Workshops	32
55.	Legal regulations and rules. Farm taxation	22.09.2010	B. Gafurovskiy	Sogd, Tajikistan	IAC	Workshops	23
56.	Soil salinity control, Micro-irrigation	26.08.2010	Khudjand city	Sogd, Tajikistan	SOF	ToT	18
57.	Farm taxation	16.09.2010	Khudjand city	Sogd, Tajikistan	SOF	ToT	16
58.	Dekhan farm financial analysis and reporting	23.09.2010	Khudjand city	Sogd, Tajikistan	SOF	ToT	14
59.	Water use plan development and pre-planting activities	14 April 2010r.	Khudjand city	Sogd, Tajikistan	SOF	ToT	10
60.	Organization of the measurement of irrigation water	22 April 2010	Khudjand city	Sogd, Tajikistan	SOF	ToT	22
61.	Selecting technological irrigation scheme / irrigation flowchart	May 2010	Khudjand city	Sogd, Tajikistan	SOF	ToT	12
62.	Pest and disease control methods	27 May, 2010	Khudjand city	Sogd, Tajikistan	SOF	ToT	12

<b>№</b>	<b>Training and workshop topic</b>	<b>Date</b>	<b>Place</b>	<b>Country, Province</b>	<b>Organization</b>	<b>Event</b>	<b>Participants</b>
63.	Irrigation water saving	25 June 2010	Khudjand city	Sogd, Tajikistan	SOF	ToT	10
64.	Crop irrigation regimes	June 2010	Khudjand city	Sogd, Tajikistan	SOF	ToT	13
65.	Farming techniques	08 July 2010	Khudjand city	Sogd, Tajikistan	SOF	ToT	9
66.	1. Methods of moisture accumulation and conservation in soil. 2. Application of biological methods of plant protection	16 July 2010	Khudjand city	Sogd, Tajikistan	SOF	Field day	28
67.	3-day on-job training on “Effective water use on field level”	20 – 22 July 2010	Khudjand city	Sogd, Tajikistan	SOF	Training – field day	33
68.	Terms, rates and methods of application of organic and mineral fertilizers.	29 July 2010	Khudjand city	Sogd, Tajikistan	SOF	ToT	9
69.	Herbicides application at crop cultivation	12 August 2010	Khudjand city	Sogd, Tajikistan	SOF	ToT	12
70.	Soil salinity control	26 August 2010	Khudjand city	Sogd, Tajikistan	SOF	ToT	18
71.	Micro-irrigation	26 August 2010	Khudjand city	Sogd, Tajikistan	SOF	ToT	18
72.	Dekhan farm taxation	16 September 2010	Khudjand city	Sogd, Tajikistan	SOF	ToT	9
73.	Dekhan farm financial analysis	23 September 2010	Khudjand city	Sogd, Tajikistan	SOF	ToT	13
74.	The impact of extension services on increase of water productivity, organization of FS in WUA, Early spring farming activities, winter wheat irrigation regime	06.03.2010	Andijan BISA TC	Andijan, Uzbekistan	Andijan and Ferghana IC	Workshop – training	21
75.	WPI- Efficient farm water use. Monitoring form, its application and completion.	14.04.2010	Andijan BISA TC	Andijan, Uzbekistan	Andijan and Ferghana IC	Workshop – training	27
	Familiarization with the FS organization and extension service in “Tomchi kuli” WUA. On-	03.06.2010	Markhamat district, “Tomchi kuli”	Andijan,	Andijan and	Workshop –	25

<b>№</b>	<b>Training and workshop topic</b>	<b>Date</b>	<b>Place</b>	<b>Country, Province</b>	<b>Organization</b>	<b>Event</b>	<b>Participants</b>
76.	job training on cotton and wheat cropping, cotton irrigation regime, monitoring forms and their application.		WUA	Uzbekistan	Ferghana IC	training	
77.	Practical workshop for polygon specialists and agronomists as well as farmers on Deflation and desiccation of cotton and preparation for winter wheat sowing and irrigation.	31.08.2010	Andijan BISA TC	Andijan, Uzbekistan	Andijan and Ferghana IC	Workshop – training	24
78.	Practical workshop for polygon specialists and agronomists as well as farmers on testing crop prior to cotton harvesting, preparation for harvest and harvesting.	14.09.2010	Andijan BISA TC	Andijan, Uzbekistan	Andijan and Ferghana IC	Workshop – training	21
79.	Practical workshop for polygon trainers, WUA specialists and farmers as well as BISA specialists on: Hydrometry, wheat sowing and irrigation, water accounting in farm and organization of work in WUA, activities to improve water productivity.	20.09.2010	Markhamat district, “Tomchi kuli” WUA	Andijan, Uzbekistan	Andijan and Ferghana IC	Workshop – training	28
80.	Water use plan development, fall farming activities on winter wheat cultivation	30.09.2010	Andijan BISA TC	Andijan, Uzbekistan	Andijan and Ferghana IC	Workshop – training	24
81.	Practical workshop for polygon trainers, WUA specialists and farmers as well as BISA specialists on Water use plan development, fall farming activities on winter wheat cultivation	20.10.2010	Pakhtaabad district “B.Usmanov” WUA	Andijan, Uzbekistan	Andijan and Ferghana IC	Workshop – training	26
82.	Practical workshop for polygon trainers, WUA specialists and farmers as well as BISA specialists on “Winter wheat monitoring form, its application and completion. Fall farming activities. Project activities analysis and assessment.”	19.11.2010	Andijan BISA TC	Andijan, Uzbekistan	Andijan and Ferghana IC	Workshop – training	23
83.	Role of extension services in water productivity improvement, organization of FS in WUA ,	9.04.2010	Ferghana BISA	Ferghana,	Andijan and	Workshop –	22

<b>№</b>	<b>Training and workshop topic</b>	<b>Date</b>	<b>Place</b>	<b>Country, Province</b>	<b>Organization</b>	<b>Event</b>	<b>Participants</b>
	early spring farming activities, winter wheat irrigation regime, monitoring forms			Uzbekistan	Ferghana IC	training	
84.	Role of extension services in water productivity improvement, organization of FS in WUA, early spring farming activities, winter wheat irrigation regime, monitoring forms	27.04.2010	Namangan BISA	Namangan, Uzbekistan	Andijan and Ferghana IC	Workshop – training	17
85.	Crop irrigation regime. Pest control	11.05.2010	Ferghana BISA	Ferghana, Uzbekistan	Andijan and Ferghana IC	Workshop – training	20
86.	Crop irrigation regime. Pest control	19.05.2010	Namangan BISA	Namangan, Uzbekistan	Andijan and Ferghana IC	Workshop – training	18
87.	Consultative work with farmers. Role of extension services in water productivity improvement, organization of FS in WUA	2.07.2010	Namangan BISA	Namangan, Uzbekistan	Andijan and Ferghana IC	Workshop – training	17
88.	Crop irrigation regime. Pest control	26.08.2010	Ferghana BISA	Ferghana, Uzbekistan	Andijan and Ferghana IC	Workshop – training	22
89.	Consultative work with farmers. Visual assessment of the irrigated field.	28.08.2010	Namangan BISA	Namangan, Uzbekistan	Andijan and Ferghana IC	Workshop – training	18
90.	Consultative work with farmers. Visual assessment of the irrigated field.	15.09.2010	Ferghana BISA	Ferghana, Uzbekistan	Andijan and Ferghana IC	Workshop – training	20
91.	Water saving methods and conditions to the application of these methods. Deflation and desiccation of cotton.	18.09.2010	Namangan BISA	Namangan, Uzbekistan	Andijan and Ferghana IC	Workshop – training	16
92.	Water saving methods and conditions to the application of these methods. Deflation and desiccation of cotton.	25.09.2010	Ferghana BISA	Ferghana, Uzbekistan	Andijan and Ferghana IC	Workshop – training	23
93.	Winter wheat pre-planting activities Hydrometry, wheat sowing and irrigation, water accounting in WUA and WUA	07.10.2010	Namangan BISA	Namangan, Uzbekistan	Andijan and Ferghana IC	Workshop – training	18

<b>№</b>	<b>Training and workshop topic</b>	<b>Date</b>	<b>Place</b>	<b>Country, Province</b>	<b>Organization</b>	<b>Event</b>	<b>Participants</b>
	organizational management						
94.	Winter wheat pre-planting activities Hydrometry, wheat sowing and irrigation, water accounting in WUA and WUA organizational management	10.10.2010	Ferghana BISA	Ferghana, Uzbekistan	Andijan and Ferghana IC	Workshop – training	21
95.	Selecting water measuring device, construction and operation requirements, selecting cotton irrigation flowchart (technological scheme)	17.04.2010	Andijan BISA TC	Andijan, Uzbekistan	Andijan dessiminators	Workshop – training	30
96.	Primary treatment of cotton plants	20.04.2010	Shakhrikhan district “Shakhrikhan ok kalmok” WUA	Andijan, Uzbekistan	Andijan dessiminators	Workshop – training	30
97.	Primary treatment of cotton plants, cotton pest and disease control	27.04.2010	Pakhtaabad district, “B. Usmanov” WUA	Andijan, Uzbekistan	Andijan dessiminators	Workshop – training	28
98.	Primary treatment of cotton plants, cotton pest and disease control	30.04.2010	MARKhamat district, “Tomchi kuli” WUA	Andijan, Uzbekistan	Andijan dessiminators	Workshop – training	38
99.	Primary treatment of cotton plants, pest control	22.06.2010	Altinkul district, “Zilo Toshkent Suvi” WUA	Andijan, Uzbekistan	Andijan dessiminators	Workshop – training	26
100.	IC and Fergana, Andijan and Fergana disseminators performance analysis and assessment	03.09.2010	Andijan BISA TC	Andijan, Uzbekistan	Andijan dessiminators	Workshop – training	24
101.	Daily water use plan development, Hydrometry; Cotton harvesting	25.09.2010	Markhamat district, “Tomchi Kuli” WUA	Andijan, Uzbekistan	Andijan dessiminators	Workshop – training	26
102.	Water use plan development; Cotton harvesting	16.10.2010	Andijan district, “Nishanbay Kambar” WUA	Andijan, Uzbekistan	Andijan dessiminators	Workshop – training	25

<b>№</b>	<b>Training and workshop topic</b>	<b>Date</b>	<b>Place</b>	<b>Country, Province</b>	<b>Organization</b>	<b>Event</b>	<b>Participants</b>
103.	Water use plan development, selection of irrigation element (?) techniques and schemes	11.11.2010	Shakhrikhan district, "Shakhrikhan ok kalmok" WUA	Andijan, Uzbekistan	Andijan disseminators	Workshop – training	24
104.	Cotton sowing activities	06.04.2010	Kuva	Ferghana, Uzbekistan	Ferghana disseminators	Workshop – training	12
105.	Cotton sowing activities	02.04.2010	Bagdad	Ferghana, Uzbekistan	Ferghana disseminators	Workshop – training	20
106.	Cotton irrigation regime and pest control	06.07.2010	Furkat	Ferghana, Uzbekistan	Ferghana disseminators	Workshop – training	19
107.	Cotton irrigation regime and pest control	07.07.2010	Kuva	Ferghana, Uzbekistan	Ferghana disseminators	Workshop – training	39
108.	Cotton irrigation regime and pest control	09.07.2010	Bagdad	Ferghana, Uzbekistan	Ferghana disseminators	Workshop – training	24
109.	Cotton irrigation regime and pest control	10.07.2010	Tashlik	Ferghana, Uzbekistan	Ferghana disseminators	Workshop – training	17
110.	Land preparation for winter wheat sowing	19.09.2010	Kuva	Ferghana, Uzbekistan	Ferghana disseminators	Workshop – training	27
111.	Land preparation for winter wheat sowing	23.09.2010	Bagdad	Ferghana, Uzbekistan	Ferghana disseminators	Workshop – training	28
112.	Land preparation for winter wheat sowing	24.09.2010	Furkat	Ferghana, Uzbekistan	Ferghana disseminators	Workshop – training	24
113.	Land preparation for winter wheat sowing	19.09.2010	Tashlak	Ferghana, Uzbekistan	Ferghana disseminators	Workshop – training	29
114.	Land preparation for winter wheat sowing	17.09.2010	Altiarik	Ferghana, Uzbekistan	Ferghana disseminators	Workshop – training	20
115.	Fall/winter activities and land leaching	17.11.2010	Kuva	Ferghana,	Ferghana	Workshop –	23

<b>№</b>	<b>Training and workshop topic</b>	<b>Date</b>	<b>Place</b>	<b>Country, Province</b>	<b>Organization</b>	<b>Event</b>	<b>Participants</b>
				Uzbekistan	disseminators	training	
116.	Fall/winter activities and land leaching	18.11.2010	Tashlak	Ferghana, Uzbekistan	Ferghana disseminators	Workshop – training	21
117.	Fall/winter activities and land leaching	19.11.2010	Furkat	Ferghana, Uzbekistan	Ferghana disseminators	Workshop – training	32
118.	Fall/winter activities and land leaching	20.11.2010	Bagdad	Ferghana, Uzbekistan	Ferghana disseminators	Workshop – training	27
119.	Cotton sowing activities		Pap	Namangan, Uzbekistan	Namangan disseminators	Workshop – training	НИ
120.	Cotton sowing activities		Namangan	Namangan, Uzbekistan	Namangan disseminators	Workshop – training	НИ
121.	Primary treatment of cotton plant, cotton pest and disease control		Narin	Namangan, Uzbekistan	Namangan disseminators	Workshop – training	НИ
122.	Primary treatment of cotton plant, cotton pest and disease control		Pap	Namangan, Uzbekistan	Namangan disseminators	Workshop – training	НИ
123.	Cotton irrigation regime and crop pest control		Namangan	Namangan, Uzbekistan	Namangan disseminators	Workshop – training	НИ
124.	Cotton irrigation regime and crop pest control		Narinskiy	Namangan, Uzbekistan	Namangan disseminators	Workshop – training	НИ

## ANNEX 2. PUBLICATIONS AND MATERIALS

№	Publication	Type	Organization	Language	Country
1.	Determination of the furrow length and water flow		Osh SRD	Kyrgyz	Kyrgyzstan
2.	Water management		Osh SRD	Kyrgyz	Kyrgyzstan
3.	Determination of the next irrigation date		Osh SRD	Kyrgyz	Kyrgyzstan
4.	Sugaruu, bul osumduktordun osuusun teskoonun negizgy yikmasi		Osh SRD	Kyrgyz	Kyrgyzstan
5.	Water accounting methods	TV	TAIC/ZOKI	Kyrgyz	Kyrgyzstan
6.	Methods of rated furrow water delivery	TV	TAIC/ZOKI	Kyrgyz	Kyrgyzstan
7.	Drip irrigation and its efficiency	TV	TAIC/ZOKI	Kyrgyz	Kyrgyzstan
8.	On resource saving irrigation methods	TV	TAIC/ZOKI	Kyrgyz	Kyrgyzstan
9.	Drip irrigation efficiency in Kyrgyzstan	TV	TAIC/ZOKI	Kyrgyz	Kyrgyzstan
10.	Drip irrigation – path to irrigation water saving	NP	TAIC/ZOKI	Kyrgyz	Kyrgyzstan
11.	Water saving methods of furrow irrigation	NP	TAIC/ZOKI	Kyrgyz	Kyrgyzstan
12.	Adherence to irrigation regime – is the basis for high yields	BR	Kyrgyz SRI	Kyrgyz	Kyrgyzstan
13.	Organization of on-farm irrigation	BR	Kyrgyz SRI	Kyrgyz	Kyrgyzstan
14.	Water saving irrigation techniques	BR	Kyrgyz SRI	Kyrgyz	Kyrgyzstan
15.	Methods of crop cultivation under plastic film	BR	Kyrgyz SRI	Kyrgyz	Kyrgyzstan
16.	Determination of crop irrigation timing	BR	Kyrgyz SRI	Kyrgyz	Kyrgyzstan
17.	Determination of furrow length and furrow water flow	BR	Kyrgyz SRI	Kyrgyz	Kyrgyzstan
18.	Technological basis for effective cultivation and irrigation of cereals and grains	BR	Kyrgyz SRI	Kyrgyz	Kyrgyzstan
19.	Vegetable cropping technology on irrigated farm lands	BR	Kyrgyz SRI	Kyrgyz	Kyrgyzstan
20.	Efficient technology of cultivation and irrigation of Fruit trees	BR	Kyrgyz SRI	Kyrgyz	Kyrgyzstan
21.	Cotton: land preparation, sowing and bunching.	NP	IAC	Tajik	Tajikistan
22.	Cotton pest control	NP	IAC	Tajik	Tajikistan
23.	Cotton pest control	NP	IAC	Tajik	Tajikistan
24.	Planning cotton irrigation regimes	NP	IAC	Tajik	Tajikistan
25.	Cotton irrigation regime	NP	IAC	Tajik	Tajikistan
26.	Cotton irrigation regime	NP	IAC	Tajik	Tajikistan
27.	Winter sowing of grain crops	NP	IAC	Tajik	Tajikistan
28.	Cotton irrigation rate, timing and technology	BR	SANIIRI	Uzbek	Uzbekistan
29.	Cotton water requirements and its irrigation regime	BR	SANIIRI	Uzbek	Uzbekistan
30.	Cotton irrigation scheduling at covering soil with polyethylene film (siphon irrigation)	BR	SANIIRI	Uzbek	Uzbekistan
31.	Cotton irrigation scheduling at covering soil with polyethylene film	BR	SANIIRI	Uzbek	Uzbekistan



<b>№</b>	<b>Publication</b>	<b>Type</b>	<b>Organization</b>	<b>Language</b>	<b>Country</b>
32.	Organic fertilizers use in cotton and grain production	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
33.	Weed control	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
34.	Recommendations for farm irrigators	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
35.	Irrigation regime for grains	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
36.	Cotton sowing	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
37.	Rates and timings of cotton irrigation. Grain pest and disease control (rust, hasva)	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
38.	Treatment of inter-row and deep tillage	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
39.	Winter wheat cropping at given development phase	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
40.	Cotton thinning (bunching) (Yagana)	BR	F Fergana and Andijan IC	Uzbek	Uzbekistan
41.	Cotton surface fertilizing with suspension	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
42.	Cotton agro technology during fruit formation phase	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
43.	Cotton topping, defoliation and desiccation	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
44.	Sowing of winter wheat on open field and on cotton plants	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
45.	Recommendations on winter wheat irrigation	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
46.	Recommendation on inter-row wheat irrigation planted against cotton	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
47.	Water use development plan and calculation of cotton water balance	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
48.	Fall plowing	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
49.	Rules of farm credits	BR	Fergana and Andijan IC	Uzbek	Uzbekistan
50.	Water distribution among farmers and measures to improve water productivity	Guidelines	Fergana and Andijan IC	Uzbek	Uzbekistan
51.	Recommendations on cotton agro-techniques to improve water productivity	Guidelines	Fergana and Andijan IC	Uzbek	Uzbekistan
52.	Water - the priceless gift of nature	NP	Fergana and Andijan IC	Uzbek	Uzbekistan

<b>№</b>	<b>Publication</b>	<b>Type</b>	<b>Organization</b>	<b>Language</b>	<b>Country</b>
53.	Chippoletti will save water	NP	Fergana and Andijan IC	Uzbek	Uzbekistan
54.	Project trains farmers	NP	Fergana and Andijan IC	Uzbek	Uzbekistan
55.	Efficient water use and water productivity improvement – the guarantee of high yields	NP	Fergana and Andijan IC	Uzbek	Uzbekistan
56.	Irrigation methods and rates for inter-row winter wheat planted on cotton	NP	Fergana and Andijan IC	Uzbek	Uzbekistan
57.	Winter wheat sowing technology	NP	Fergana and Andijan IC	Uzbek	Uzbekistan
58.	Recommendations on winter wheat irrigation (Shakhrikhan)	NP	Fergana and Andijan IC	Uzbek	Uzbekistan
59.	Drops of water – are gold	NP	Fergana and Andijan IC	Uzbek	Uzbekistan

### ANNEX 3. COVERAGE AND DISSEMINATION

<b>№</b>	<b>District</b>	<b>Province</b>	<b>Country</b>	<b>Actual service area of the canal, ha</b>	<b># of farmers</b>
1	Aravan	Osh	Kyrgyzstan	73,59	97
2	Karasuy	Osh	Kyrgyzstan	49,56	46
3	Uzgen	Osh	Kyrgyzstan	119,72	135
4	Spitamen	Khudjand	Tajikistan	1477.4	30
5	J. Rasulov	Khudjand	Tajikistan	980.1	53
6	B. Gafurov	Khudjand	Tajikistan	1093.9	16
7	Kanibadam	Khudjand	Tajikistan	1813,5	19
8	Mastcha	Khudjand	Tajikistan	447	35
9	Zafarabad	Khudjand	Tajikistan	397,1	13
10	Markhamat	Andijan	Uzbekistan	467	8
11	Pakhtaabad	Andijan	Uzbekistan	759	12
12	Shakhrikhan	Andijan	Uzbekistan	809	14
13	Altinkul	Andijan	Uzbekistan	526	6
14	Andijan	Andijan	Uzbekistan	542	8
15	Kuva	Fergana	Uzbekistan	471	9
16	Tashlak	Fergana	Uzbekistan	644	10
17	Altiarik	Fergana	Uzbekistan	813	12
18	Furkat	Fergana	Uzbekistan	517	10
19	Bagdad	Fergana	Uzbekistan	672	18
20	Pap	Namangan	Uzbekistan	991	11
21	Narin	Namangan	Uzbekistan	702	10
22	Namangan	Namangan	Uzbekistan	1251	11





**РЕКОМЕНДАЦИИ ФЕРМЕРАМ**

Важнейшей задачей фермы является получение максимальной урожайности, которая достигается при оптимальном уровне агротехнических мероприятий.

Оптимальный уровень агротехнических мероприятий достигается при оптимальном уровне агротехнических мероприятий. На практике, оптимальный уровень агротехнических мероприятий достигается при оптимальном уровне агротехнических мероприятий.

Одним из важнейших агротехнических мероприятий является обработка почвы. Она должна осуществляться своевременно и качественно. Для этого необходимо использовать современные средства механизации.

Важным фактором успеха является также выбор сортов и гибридов, адаптированных к местным условиям. Необходимо также уделять внимание защите растений от вредителей и болезней.

Для получения высоких урожаев необходимо также обеспечить растениям оптимальное питание. Для этого необходимо использовать современные удобрения и соблюдать правила их внесения.



**Каждый день это шаг для мечты!**

Каждый день это шаг для мечты! РИЗКОФАРИН - это высокоэффективное удобрение, которое обеспечивает растениям оптимальное питание и способствует получению высоких урожаев. Оно содержит все необходимые элементы питания в оптимальных соотношениях.



**УСУЛУҶИ МУБОРИДА БОҶАШАРҶОҶИ АРАҶАСОНИ ПАХТА**

Усулуҷи муборада бо ҷашаҷоҷи араҷасони пахта ба ҳамаи фермерҳои Тоҷикистон муроҷиат менамояд. Барои ҳамаи фермерҳои Тоҷикистон муҳим аст, ки онҳо ба ҳамаи талаботҳои агротехникии муқарраршуда риоя намоянд. Барои ҳамаи фермерҳои Тоҷикистон муҳим аст, ки онҳо ба ҳамаи талаботҳои агротехникии муқарраршуда риоя намоянд.



**Каждый день это шаг для мечты!**

Каждый день это шаг для мечты! ИҚБОЛ - это высокоэффективное удобрение, которое обеспечивает растениям оптимальное питание и способствует получению высоких урожаев. Оно содержит все необходимые элементы питания в оптимальных соотношениях.



**Каждый день это шаг для мечты!**

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Тўғилган — яшай Ватан ҳақида

# Халқ сўзи

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи

# ХУЧАНД

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи

**ИМРУЗ ЧОП ХАР ФАДИН  
БООРУ НОМУС ПАХТАЗОР АСТ**

№36 (4082)

**Қўшни республиканинг аҳолисини қўллаш**

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи



# Andijonnoma

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи

## ФАЛАЗОРГА СУВ КЕЛДИ

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи



# ФАРФОНА ХАҚИКАТИ

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи

**МАҲАЛЛИЙ ҲИТ ЖАМҒАРДИНГИЗМИ?**

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи

# DAVR sadosi

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи

**СУВ - БЕБАҲО НЕЪМАТ**

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи



# ФАРФОНА ХАҚИКАТИ

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи

## КУЗГИ ФАЛЛА ЭКИШ ТЕХНОЛОГИЯСИ

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи

Ўзбекистон Республикаси ҳарбий қисминининг ахборот мажмуи Сўзи

## СУВ - ҲАЁТ МАНБАИ

(Қишлоқ вакили) суғи орнатилган

Суғи орнатилганидан сўнг сувнинг қанчалик қулайлигини ҳақиқатан ҳам ҳис қилиш мумкин. 2 йилдан буён бу қишлоқда сувнинг қулайлигини ҳис қилиш мумкин. 2 йилдан буён бу қишлоқда сувнинг қулайлигини ҳис қилиш мумкин.

Қишлоқ вакили суғи орнатилганидан сўнг сувнинг қанчалик қулайлигини ҳақиқатан ҳам ҳис қилиш мумкин. 2 йилдан буён бу қишлоқда сувнинг қулайлигини ҳис қилиш мумкин. 2 йилдан буён бу қишлоқда сувнинг қулайлигини ҳис қилиш мумкин.

## БАҲРАМИҒИЗ МУБОРАК АЗИЗ МУАЛЛИМЛАР!

# ЯНГИ ҲАЁТ

Бизнинг ҳаётимизда янги ҳаёт бўлиши керак

## ТАВСИЯЛАР

Бизнинг ҳаётимизда янги ҳаёт бўлиши керак. Бизнинг ҳаётимизда янги ҳаёт бўлиши керак. Бизнинг ҳаётимизда янги ҳаёт бўлиши керак. Бизнинг ҳаётимизда янги ҳаёт бўлиши керак.

**БИЗДИН СУНУШ – СИЗДИН УТУШ!**

# ФЕРМЕР

Ош облустук Айылдык Кеңеш берүү Қызматы

ИЮЛЬ (095) 2010-жыл

**Талабчилик**

### КАНТКЕНДЕ СУУНУН АЗЫК БЕРҮҮЧҮЛҮГҮН АРТТЫРСА БОЛОТ?

Суғи орнатилганидан сўнг сувнинг қанчалик қулайлигини ҳақиқатан ҳам ҳис қилиш мумкин. 2 йилдан буён бу қишлоқда сувнинг қулайлигини ҳис қилиш мумкин. 2 йилдан буён бу қишлоқда сувнинг қулайлигини ҳис қилиш мумкин.



**СУУНУН АЗЫК БЕРҮҮЧҮЛҮГҮН АРТТЫРСА БОЛОТ!**



## ANNEX 5. MINUTES OF REGIONAL MEETINGS

### Minutes of the Project Steering Committee (PSC) meeting along the Water Productivity Improvement at Plot Level Project

Ferghana city, Uzbekistan

March 25, 2010

#### **Participants:**

##### ***The members of the PSC:***

Hanspeter Maag – Country Director of Swiss Cooperation Offices (SCO) in Kyrgyzstan and Uzbekistan

Khayrulla Mukhitdinov – Head of the ICWC Secretariat

Anvar Zoirov – authorized representative of the Ministry of Melioration and Water Resources of the Republic of Tajikistan

Mavlyan Toktobaev – authorized representative of the State Agency "Irrigation", Department of Water Resources under the Ministry of Natural Resources of the Kyrgyz Republic

Khamdam Umarov – authorized representative of the Ministry of Agriculture and Water Resources of the Republic of Uzbekistan

##### ***Participated:***

Nicolas Guigas – Deputy Country Director, SCO in Tajikistan

Olivier Magnin – Water Resources Management Advisor, SDC

Omina Islamova – Regional Manager of the Water Sector Program

Ruslan Sadykov – National Project Officer, SCO in Tajikistan

Bakyt Makhmutov – National Project Officer, SCO in Kyrgyzstan

Viktor Dukhovny – Director of SIC ICWC

Herath Manthrihithilake – Project Leader of WPI-PL Project from IWMI

Shukhrat Mukhamedjanov – Project Leader of WPI-PL from SIC ICWC

Invited participants: 48 people from three target countries

The meeting of the PSC was chaired by Mr. Hanspeter Maag.

##### **Agenda of the Meeting:**

1. Approval of the report for 2009 along the WPI-PL Project
2. Approval of the Yearly Plan of Operation for 2010 of the WPI-PL Project

### 3. Miscellaneous

#### Outcomes of the Committee Meeting:

1. The Committee Members acknowledged the progress and outcomes of the WPI-PL project in 2009 and established partnerships to create sustainable agricultural innovation system in three countries of the Ferghana Valley. Therefore the Committee Members approve the progress report for 2009.
2. The Committee Members proposed to approve the Yearly Plan of Operational for 2010 with following comments:
  - a. The project activities should fit the requirements of farmers, especially women farmers;
  - b. The project has to identify and assess constrains for accepting recommendations by farmers;
  - c. The project should fully cover at least one WUA in each country with water flume meters with the purpose of proving the effect of water measuring;
  - d. Enhance effectiveness and efficiency of extension services to the level that farmers can afford to pay (increase the area coverage and number of farmers);
  - e. Finalize the extension services strategy agreed by National partners to the next annual stakeholder meeting;
  - f. The project should contribute to public awareness activities amongst farmers to promote payment for irrigation services for volume of water they receive.
- 2.1. The Committee Members approve the budget for 2010 as provided
3. No questions were raised.

The chairman of Steering Committee

Hanspeter Maag



Country Director of Swiss Cooperation  
Offices (SCO) in Kyrgyzstan and  
Uzbekistan

## MINUTES

**Workshop - meeting:  
"The strategy of the project tasks' accomplishment and sharing experiences"  
in the frames of the project "Water Productivity Improvement at Plot Level» (WPI-PL)**

**17-18.06.2010**

**Tashkent**

**Participants: 34 people**

### AGENDA

**Thursday, June 17:**

- 1. Strategic goals and objectives of the project. Vision of the project regional groups.** *V.A. Dukhovny*
- 2. Vision of the strategy for consulting work in the Uzbek, Tajik, and Kyrgyz parts of the project.** *Sh. Mukhamedjanov*
- 3. Vision of the strategy for working of the information center in the Uzbek, Tajik, and Kyrgyz parts of the project.** *Mohan Reddy Junna and J. Kazbekov*
- 4. Partners' interaction in carrying out consultancy work, conducting training for trainers and training of farmers of Uzbekistan and Tajikistan.** *Sh. Mukhamedjanov and J. Kazbekov*
- 5. Collection and assessment of initial material on demonstration fields and farms.** *L.Averina, I.Ruziev, R. Sagdullaev*

**V.A. Dukhovny** opened the meeting by his report on strategic goals and objectives of the project. In his speech he marked that having a great international experience and development of advisory services in the world, this system was not organized in Central Asia and the organizational forms of such services were not displayed at the state level. Land allotments in Kazakhstan increased to 25 hectares, and in Uzbekistan they increased up to 50-70 hectares. Under these conditions, the system of consultation and involvement of qualified professionals takes great importance in increasing productivity and profitability of farms. Practicing organizational forms is an important point in the project work, and its results will be visible upon the work of each partner organization involved in the project. There are proposals for the development of advisory services on the basis of the WUA. We need to work out and test these proposals and give opinions in terms of their relevancy. Informational basis is a very important part in the work of advisory services. Only reliable and constantly updated information makes it possible to accept the right decisions. Another very important issue of this project is the assessment of the financial sustainability of farms. The results on two projects of recent years IWRM-Fergana and WPI-PL give grounds to assert that financial stability of farmers is a priority objective of the project. In our studies we need to clearly display financial status of farmers through reports of trainers. Analysis and assessment of resources' efficient use is implemented on the basis of financial indications. Also setting up farm schools will be essential point for the project work. Farmers' schools, as well as advisory services should be organized in the places convenient to farmers.

There is a proposal to organize them in the WUA, but other experience is gained at the demonstration plots of advisory services. Project experience is of great importance for other projects, so for example, a series of meetings and workshops to exchange experience were arranged in 2009 for the projects IWRM and RESP, and files and manuals were submitted to these projects for further use.

**Sh. Mukhamedjanov** made a speech focusing on strategy for advisory work. In particular, he noted that basic principles of consultation should be: rendering assistance to farmers in solving their problems, advancing farmers' knowledge in agricultural production, increasing farmers' income, help farmers to get more income at minimal costs, consultations should not be intrusive, the consultants themselves should go to farmers and not to wait until a farmer expresses desire to come to AS, the consultants should not leave farmers without attention, no matter what issues they raise. Experience gained in 2009 showed that the advisory services should be organized in places where farmers frequently come to solve their daily problems. Farmers often come to the WUA where this structure is really working. It is logically to organize Advisory Services and farmer schools at WUAs. Not only hydraulics specialist, but also an agronomist is important to be available at WUA. It is necessary to rely on the management of former collective farms, where all process of agricultural production was managed mainly by agronomist and hydraulic engineer. In WUA, which has the same area as former collective farms used to have, an agronomist and hydraulic engineer will not only manage but also consult on efficient and effective management of agricultural production.

**Mohan Reddy Junna and J. Kazbekov** discussed strategies for the work of information centers in the project. In particular, major challenges of the Information Centre were underlined. They are: processing and transformation of knowledge into clear language understandable for farmers (while keeping a good relationship with research institutes and based on results of their researches); development of training and learning materials for advisory services (depending on the chosen strategy for dissemination of Advisory Services and on the basis of Advisory Services and farmers' needs); training of trainers and consultants-disseminators: how they should conduct consultancy work (which methods should be used in their work); feedback: always to assess the quality and acquisition of materials based on opinions of research institutes, Advisory Service, and farmers and to improve them. And meanwhile the Information Centers should simultaneously understand the scientific matters, understand farmers' problems and have perception on consultancy activities. It was proposed to elaborate a set of documents for each country including the technologies that contain the following types of materials (under coordination of Information Center and aid of scientific research institutes and Advisory Service):

- To have primary sources – a textbook containing the basics of efficient water use at the field, starting with the basics of irrigation, soil conditions, climatic issues, humidity, and organize irrigation, irrigation requirements of crops, irrigation mode and schedule, etc., i.e. that this textbook should include all issues related to conducting irrigation. Using this textbook, trainers-consultants can put into practice this source in their consultancy work. Form of "technology maps" elaborated by regional group can be taken as basis and the content of the textbook.
- List of technologies – set, catalogue and a list of all technologies. Catalogue of all technologies / innovations (list) on water conservation and efficient use of water at field level should be based on the needs and requirements. The following should be specified in the catalogue: what problems are solved, the essence of technology (positive and negative points), problems occurred while implementing stage, and ways to solve these problems, costs associated with introduction, economic benefits / benefit from the introduction, who should be contacted in case of raising issues.
- To develop a methodology to conduct consulting work for each technology, i.e. to develop a training module for the consultancy work, how to conduct lessons. To include into this package a system of assessment, feedback and monitoring of proposed and adopted technology that will eventually point to effectiveness of our work.

**L. Averina** made a presentation on collection and assessment of baseline material for demonstration fields and farms. In particular, she noted that the goal was to assess effectiveness of project activities on improving water use productivity and to identify directions for further work. Comments were made to all partners for completing forms, and recommendations for further actions were given. She also drew attention of partners to the issue that monitoring of farms was carried out in order to identify and track problems and deficiencies in agricultural farming for development of recommendations and follow-up counseling.

## **AGENDA:**

### **Friday, June 18**

**1. Sharing experiences of partners regarding approaches in consultancy work with farmers and interaction with the IC and Research institutes.** *Tajikistan: S. Isamutdinov and A.*

*Khoshimov, Uzbekistan – M. Mirzaliev (Fergana IC) and A. Kamolitdinov (Andijan IC)*

**2. Exchange of experience of Kyrgyzstan, Tajikistan and Uzbekistan partners on the approach of the Information Center's functioning and interaction with disseminators and Research institutes.** *D. Islamova, Tajikistan SOF; V. Nasonov and A. Abirov, SANIIRI.*

**3. Sharing experiences of partners on approaches of research institutes' activities and the interaction with information centers and disseminators.** *Tajikistan – A. Usmonov, Tajikgiprovodkhoz, Uzbekistan – M. Mirzaliev (Fergana IC) and A. Kamolitdinov (Andijan IC)*

**4. Problems and needs of farmers, the drawbacks in their work and decisions taken to resolve them.** *Tajikistan: S. Isamutdinov, IAC; A. Khoshimov, Zazamin; D. Islomova SOF; Uzbekistan: K.Kabulov, A. Akhunov, A. Khoshimov/R. Jabbarov, M.Mirzaliev (Fergana IC) and A. Kamolitdinov (Andijan IC).*

**5. Assessment of the economic position of farms in Kyrgyzstan, Tajikistan and Uzbekistan (in compliance with results of 2009 and early 2010).**

**S. Isamutdinov and A.Khoshimov** made their presentation on approach to advisory work with farmers and partners' interaction in Tajikistan. They noted that one agronomist and one hydraulic engineer were working in each district; they went out together on field visits. Two to three times a month trainers visited farmers and provided individual counseling. They note problems in diary, give their recommendations and implement monitoring on their implementation. One to two times a month trainers undergo trainings in the Information Center.

Tadzhikgiprovodhoz prepared a questionnaire. We have three types of consultations:

1. Individual counseling are based on experience and results of training
2. Group counseling is provided 1-2 times per month through conducting workshops.
3. Mass consultation through the media, newspapers and articles

**M. Mirzaliev** made a presentation on approach of information center's operation and its interaction with disseminators and Research Institute of Fergana oblast. He noticed that we had divided the Fergana oblast into three zones and asked Research Institute to help prepare recommendations based on these three features. These zones are old irrigated lands, newly irrigated ones, and adyr lands.

**Question** was asked by S. Isamutdinov from Tajik side, who identified to split into three zones.

**Answer:** We have a professional of 40 years experience. In addition, there is an agricultural scientist who knows the territory very well. Therefore it is important that Information Center

should be staffed by scientists, education experts and water engineers. It is not sufficient to consider only water issues, complete range of all issues should be regarded in our work. We operate in 97 farms but as we say “we do not expect farmer’s coming”, we ourselves meet them, using all possible ways to disseminate our developments. So, sometimes we cover 245 farms. Specialists of USAID, GTZ projects visited our demonstration fields. Therefore considering such great interest of other projects as a result of our work, we propose to organize a "basic farm school" at WUA level.

**Comments** of Tajik team - A. Khashimov, Zarzamin: farmer field schools should be independent, we need to organize them in places where farmers mostly attend. Farmer field schools should function also as services, should possess appropriate scientific equipment - moisture, rain gauge, measuring soil moisture, etc. His opinion was supported by representative from advisory service of Namangan oblast, who noted that Pap district had seed farm, which possessed its own field camp, where training for farmers could be conducted, and based on it a farmer school had been organized which was attended by farmers with great interest.

In Fergana oblast Khokims hold weekly farmers’ meetings for which all elders (experienced agronomists and labor veterans) are invited in order to help farmers in proper organization of agricultural production. We have used those meetings to disseminate our approach and communicate with farmers from around the oblast. At these Khokimiyats’ meetings, our discussion of issues, proposed solutions and recommendations on eliminating present problems, aroused great interest not only among farmers but also by the elders and Khakims. Sometimes the agenda discussed issues of increasing yields and water use efficiency, which were raised by our experts. Based on those meetings and interactions with Khokimiyats, we have disseminated more than 3200 sheets this year.

### **Report of Islomova D., SOF**

We are collaborating with the Research Institute, jointly developing information materials and arranging field monitoring visits. They help us in formulating recommendations on topical issues and development of training modules. We carry out joint monitoring and assessment of farmers' fields with trainers from advisory services. Advisory services provide us with materials of baseline information and assist in providing feedback from farmers. For joint assessments of needs and requirements, we developed a database. For operational work with disseminators we consult via phone, e-mail, organize monitoring field visits, and hold regular working meetings to discuss the issues raised (2 times a month). Based on discussions and analysis of baseline information, we conduct training for trainers and prepare training materials adapted to farmers. We have prepared and provided disseminators with very visual and simple statistical database.

Regional Manager Sh. Mukhamedjanov recommended to circulate this approach of analysis and assessment among other partners in Uzbekistan and Kyrgyzstan. Regional Coordinator Kh. Khodjiev was entrusted to prepare suitable material for experience transfer through the regional group. Sh. Mukhamadaliev noted that the Tajik team led by Regional Coordinator Kh. Khodjiev decided to challenge our assessment of satisfaction from farm households by our counseling and technologies. This approach should be used for all partners. Taking into account successful analysis of baseline material by SOF Information Center, it is necessary to strengthen profile of information center SOF in irrigation engineering issues for its further effective operation.

Sh. Mukhamedjanov also marked that currently opened project website is expected to insert informational base not only for review but also for work online. We can use this website to transmit any information, including approaches and technologies.

The first seminar day was completed with these issues.

The next day, June 18, the first morning report was done by **A. Kamaliddinov, Head of Information Center in Andijan oblast.**

He introduced to attendants the approach that has been used by Andijan Information Center this year. In particular, they suggested to establish farmer's corner at agricultural industry, to use local social organizational conditions. Namely Khokimiyats organize groups to identify and evaluate fields of farms, these groups can be used to obtain information from farms presently uncovered by project, and to develop a set of measures both on guidelines and training for professionals from Khokimiyat groups. We can offer Khokimiyats our services on one hand, and use their groups for assessment and consultation on the other hand. Information Center always tries to rely on factual situation and the original data. On the basis of studied problems of farmers, issues were identified and relayed to SANIIRI.

Further presentations were made by representatives from the Research Institute. Representative of Sogd Branch of **Tajikgiprovodhoz** was granted to speak first.

In particular, this representative noted that searching for materials to define and develop recommendations and approaches, as well as indicators for information centers and disseminators is foundation of the institute work in this project.

We, based on materials of past years, developed standards for water resources development (standard irrigation). We use data of hydro- and geological expedition. Without waiting for participation in seminars of IC /AS, we receive online information and requests from farmers. Only last year we gave 20 related materials, this year we also prepared recommendations and materials for professional advisory services through the Information Center SOF. At the end of the last year, we prepared a questionnaire. Monthly, with IC, we prepare advance mode sheets of agro-technical activities.

Under coordination of Regional Project Manager we conduct monthly meetings with all partners, and carry out weekly working meetings in an informal atmosphere, and try to be on field, closer to farmers.

### **Report of Nasonov, SANIIRI**

Our work in the project is based on following points: development of recommendations based on farmers' needs, conducting search of research materials. In collaboration with IC research results are converted into easy material understandable by farmers. At present, on-demand data of Andijan oblast Information Center Guidelines for irrigation mode of cotton cultivated under plastic film for different-textured soils is completed and submitted to the IC. Irrigation technologies, which correspond to the current size of farms, have been selected and are ready for mailing. The remaining recommendations are being developed. Quite rightly, the remark of IC that the recommendations should be discussed with disseminators and trainers, and specialists should be trained in terms of their application. Interaction of Information Center (IC), disseminators, trainers and research institutions will be largely determined by the problems faced by farmers.

### **Tajikistan. Khalim Khodjiev**

As a result of monitoring for each demonstration plot in 2009, physical and financial costs incurred by farmers from plowing to harvesting and selling grown crops were identified and analyzed. Depending on amount of agricultural work and prevailing rates on them costs of all-agricultural operations in national currency are calculated. The same work is carried out in 2010. As of June 1 in "Buri Kurmas" farm in comparison with 2009 year, 2 additional cultivations and a hoeing (breaking crust) operation were done. Hired labor force has risen from 10 to 15 Somon (50%), fuel and fertilizer have risen in price by 30% and 12%, respectively. Sowing of crops damaged by 10%, backlog growth and development of cotton is 8-10 days. Regarding dehqan farm Shark, the state of crops is good, shoots were obtained without auxiliary

watering. Additional hoeing (breaking crust) was conducted. Anticipate the development of cotton as compared to 2009 on June 1, is 6-8 days. Price hike of petroleum products, fertilizers and labor, is respectively, at 30%, 12% and 50%.

Report of **S.A. Nerozin** was devoted to topics of agro-economic analysis on productivity and efficiency of water and land use. Concerning variable costs he noted that those costs were directly related to growing specific crops in the field. Variable costs include the following costs: for seeds, fertilizers, pesticides, machinery, labor, irrigation water, transport and other costs. Variable costs are defined as product of input prices to its costs in physical terms. Fixed costs are those costs which are almost impossible to attribute to cultivation of a particular culture. Energy costs, the overall transport and equipment not used in the field. Rent. Costs associated with renting, such as land, storage facilities, etc. Taxes: on land, transportation, licenses, insurance, etc. He presented a form of monitoring of fixed and variable costs, and noted the importance of properly filling out forms for proper analysis and as a result of correct decisions.

**Proposals:**

- Share information; send all materials to all partners throughout each republic on regular basis. We are all interested in what materials are published and available, how you control pest, what workshops and trainings are conducted, how much progress you have achieved, how climate affects the ongoing work, etc. (Isamutdinov S.A.)
- It is necessary to hold economic calculations of the most cost-effective agriculture. To conduct forecast economic calculation, that is to find calculated effective approaches to increase profits of farms. On this basis, using these estimates as an argument, as economic lever, to give farmers advice on agricultural production. (Sh. Mukhamedjanov)
- It is necessary to organize a school of irrigators, as well as farm school. Now everywhere there is a shortage of good irrigators. There are good irrigators in each republic in every area and they can be attracted as trainers for farm schools. (Kazbekov J.)
- Considering interest of other projects in our experience two demonstrational pilot farmer field schools on the basis of "base WUA" should be organized. (Mirzaliev M.)
- Stressing successful holding of this seminar, its usefulness and importance of sharing experiences and partners' activity it is suggested to hold the next seminar in August of current year. To conduct further seminar at more interactive level, to work in groups with flipcharts, and to merge with partners according to their specificity. (Sh Mukhamedjanov)
- At the next workshop to organize an exhibition of handouts (newsletters, brochures, etc.). Who is producing the above materials, and what kind of materials are being produced, what newsletters, advices, newspapers, etc. (Kazbekov J.S.).

Regional Manager of WPI-PL Project



Sh. Mukhamedjanov



## MINUTES

**of a working meeting-workshop on the theme:  
“Progress in the project objectives implementation and plan of operations for  
the non-growing season”  
in the framework of “water productivity improvement at plot level (WPI-PL)” project**

4-5.10.2010

Tashkent city

**Participated: 54 people.**

### Agenda

**Monday, October 4:**

- 1. Reports of National Project Coordinators** for Kyrgyzstan – M. Toktabaev and for Uzbekistan – Kh. Umarov on the current situation in the project this year.
- 2. National reports on the project progress for 2010 and submitting of plans of operations for the non-growing season.** Reporters: Kh. Khojiev, Sh. Alybaev, Sh. Ergashev.
- 3. Reports on the project progress for 2010 by the project organizations-disseminators and their vision of extension for the non-growing season.** Reporters: S. Isamutdinov, A. Khoshimov, S. Toktosunov, B. Abdyrazakov, K. Kabulov, A. Akhunov, N. Satimbaev/A. Khoshimov.
- 4. Experience of WUA “Tomchikul” specialists in Markhamat rayon on work with farmers.** Reporters: S. Sobirov, Leader of the WUA, and Kh. Fazilov, trainer-agronomist of the project.
- 5. Experience of WUA “Kamiljon Umarov” in Toshlak rayon.** Reporter: A. Ruziev.

The meeting was opened by Mukhamejanov Sh., the Leader of WPI-PL project from SIC ICWC, and after greeting all the participants he gave the floor to Prof. Dukhovny.

In his welcoming report, **Prof. Dukhovny** greeted all the participants and noted that today we have to work in a virtual way that undoubtedly imposes great difficulties on us and our Kyrgyz colleagues, in particular. We hope that sanity should prevail.

The project role can scarcely be overestimated. “Water Productivity Improvement at Plot Level” is considered as a continuation and development of IWRM-Fergana project, and in due time it was a big mistake to separate this component from IWRM-Fergana project to be a specific project. Today, more and more specialists receive evidence that water and land productivity cannot be separated from water management. This is a single complex which we should solve together in an integrated manner and quite clear mutual agreement. The shortcoming which CA suffers from is precisely a gap in water management at plot level and between farms and, further, at higher level. From this viewpoint, IWRM makes efforts to coordinate this all. It does not mean that we have harmonized everything in IWRM already but, at least, we can see where our shortcomings at junction between WUA and a farmer and between canal and WUA are, as these are parts of a common chain, a very complex chain. There is no such a system in the world as in the Fergana Valley where surface water, groundwater and collector-drainage water would be linked. This system where water is supplied from the main feeding systems of the Syr Darya and from 22 small rivers simultaneously which regularly feed these lands in different volumes. Water availability and sustainability also depend on this.

Effective water management should be considered and analyzed through the prism of an end-user. Land and water productivity improvement is the only way to survive.

In recent decades we can see the climate change as a number of extreme phenomena raised. Let us take a hydrographer from 1960 to 1990 and take the same hydrographer of the Syrdarya from 1990 to 2010 as an example. For the recent 20 years we have more extreme phenomena- high waters, droughts- than their number was during the previous 30 years. Their scope has increased, that is very dangerous. And one more important phenomenon - earlier we had more possibilities to manage main networks and main structures beyond water agencies so that to mitigate these phenomena due to long-term regulation of return waters. Now, during the epoch of monetarism and commercial interests, power engineering specialists in particular, it is very difficult to put them out from this position. During the last 10 years we worked in the conditions of water deficiency in the Syr Darya in summer time. If comparing water supply from the Syr Darya from 2002 to this year, now we plan the volume of water to be delivered much less for all the republics since 8 to 10 billion m<sup>3</sup> of water goes to the Aral Sea due to winter water release. It is one of the factors which forces to adapt to life under the conditions of water deficiency. 2000-2001 were of low water, 2002-2006 were of high water, so everybody relaxed, and power engineering specialists strenuously sold water from Toktogul. And in 2007-2008, not only Uzbekistan, Tajikistan and Kazakhstan have found themselves at level of 65% of water availability, but also Kyrgyzstan. Branch interests have exceeded interstate ones, the state lost management, but despite this, practically in 2008, we survived more or less as we were engaged in water savings. SFC did not receive about 400 million m<sup>3</sup> of water, that water was conveyed for feeding of BAC. We should get used to live under the conditions of low water. Water is getting so expensive that the recent prices required by power engineering specialists are at level of \$0.08 USD per kW, i.e. \$0.085 per 1 m<sup>3</sup> of water. They will never be able to cover energy if water productivity is at the current level. Today the average level of water productivity in Fergana Valley accounts for \$0.03 to \$0.05 USD per 1 m<sup>3</sup>. To learn to manage water productivity and achieve \$0.08 per 1 m<sup>3</sup> is considered an important aspect of our project. Also, we should pay special attention to financial sustainability of farmers since their solvency provides WUA solvency.

The principal output of WPI-PL project is to improve water productivity. The level of farmers' knowledge of this question varies, and our challenge is to provide them with scientific fundamental knowledge and help cope with difficulties through arrangement of extension services. Demonstration sites and set up of farmers' schools where it is necessary to show to farmers which results and how they can be achieved on the given land in order to ensure financial and economic sustainability are especially important for this purpose. RESP II project has started its activity in this direction, and today people from this project are here. The coverage area of RESP II is much more than yours, it covers 244,000 hectares. Soon one more similar project on pumping irrigation in the area of 60,000 hectares will start to be implemented in Uzbekistan.

Final task is to provide a methodical basis for sustainable data gathering, to show all work on real facts and to trace that this information has reached the end-user and works. But it is necessary to take into account economic weakness of the branch and limited support from the state. Besides, prices for agricultural products are unstable. Thus, a farmer constantly faces various problems. Our task is to monitor these problems, deviations from technologies, analyze current situation, information in an operative manner and generalize it, find admissible solutions and inform the Government about them which solves them operatively.

One more issue is change of the gender composition. It is required to develop extension specificity for women.

The next year is considered as decisive for the project. It is necessary to pay special attention to such a principal indicator as the coverage area, and decide how to move further.

**Mohan Reddy Junna, WPI-PL Project Leader, IWMI:** After welcoming all the participants, Prof. Junna also thanked all the participants for that they have come to the workshop in a complete structure and, in particular, the Kyrgyz part considering the situation in the country.

Prof. Junna noted that our objective is to give the Government such a solution that it could give farmers innovation solutions, technologies. It is required to create such a system to fill all farmers' gaps and make sustainable solutions. It is needed to clarify what works and what does not work, share opinions, discuss all achievements and problems openly and, if required, to subject to constructive criticism.

Further, the National Project Coordinators for Kyrgyzstan - Toktabaev M.T., and for Uzbekistan – Umarov Kh.U. made their reports where they emphasized importance of the project and necessity of its follow-up development, and thanked SDC for rendering their assistance and promotion.

**Toktabaev M.T., National Project Coordinator for Kyrgyzstan:** In his report, Toktabaev underlined that the basic problem of farmers is lack of experience in effective irrigation water use, and also presence of such problems as waterlogging and high level of ground waters. Lack of hydroposts (vodlhozs have no time) and water accounting systems leads to conflicts between mirabs and water users. Therefore, work made by the project – establishment and adjustment of the partnership and interaction system at all levels - is very important.

Due to the project, the system of partner relationships between the various organizations (Water Management Committee, KyrgyzNIIr, Center of Training, Consultation and Innovation, Rural Advisory Service (RAS) and WUA Support Department) has been established. Their joint activity allows assessing current essential problems of farms in an operative manner and giving recommendations on how to solve them. This partnership system has allowed the organizations to carry out the following activities: 1 – maintain constant liaison with farmers; 2 – assess problems of farmers in a regular manner; 3 - introduce scientific research institute developments in farmer's field directly; 4 – purposefully prepare trainers of extension services.

In Kyrgyzstan, the organized approach to of irrigating water distribution in small farm areas is considered as one of the important project achievements.

Such a system of water use allowed farmers of pilot off takes to transfer to volumetric irrigation water payment which in turn allowed to discipline of irrigation water use and raise its efficiency.

The tariff for water was raised from 3 tyiyn to 5 tyiyn by the decree of the Kyrgyz Government. Some WUAs at their meetings raised the tariff to 10 tyiyn. Farmers have begun to complain about high water charges.. Farmers had questions at field level which they addressed to the State Committee for Water Management and the Government regarding the submitted volume of water, water price, water apportioning among farmers when hydroposts are lacking. No one is responsible for these issues at field level today. Rayvodkozes have no power, they supply water from inter-farm canals through a hydropost, and water is practically not apportioned for farmers at plot level. There are numerous examples of mirabs' negligent work.

In the southern areas, heads of rural administrations and some rayon Khakims began to be interested in our project. Batken Oblast Administration addressed to the project executors the request on establishment of an irrigation water management system at farm level in the oblast. The idea of the mentioned project is supported by the Management of the State Committee of Water Resources and Land Reclamation, farmers and water users from other regions of the republic are interested in it. The Management of the State Committee of Water Resources and Land Reclamation suggested to use the approach developed by the project in other oblasts.

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**Umarov Kh.U., National Project Coordinator for Uzbekistan:**

On December 25<sup>th</sup>, in 2009, some amendments in the Law on Water Use were adopted. Now, it is required to confirm all WUA Charters again. Agreements on water receiving-transfer between the water user and the water supplier have been prepared and will be affirmed by the Ministry of Justice. In comparison with last year, employees on places work well, especially in the Andijan and Namangan oblasts. In the Fergana area there were mistakes when cultivating cotton, cutting off, applying fertilizers, thereafter level of plant diseases caused by insects grew. In Andijan and Namangan oblasts the situation is better due to the Project Manager and information services. Apart from this, it is necessary to note good work in Namangan oblast, they are being involved into the project for 2 years and achieved good results in constructing hydroposts. Cotton was watered well in Andijan oblast only.

Many things were successful, but there are still issues which require solution: work of Farmer's Field Schools (only few FFSs function good). It is necessary to monitor results and how recommendations were accepted. It is needed to prepare recommendations on cotton storing and seeds sowing as soon as possible and disseminate them, study the answer and how they were taken on site. Also, our consultants should train irrigators and keep working on extension of the coverage zone. Farmers need insurance, so economists should include insurance against weather conditions, pests. It is necessary to give two-track advice: from a hydrotechnician as well as an agronomist.

**Ergashev Sh., Oblast project coordinator:** In his report he noted importance of works done within the framework of the project and aimed at improvement of agricultural activity of farms. A wide range of cases in point solved by the project successfully arouses great interest in farmers and administration of oblasts. In the table, he showed visually the project coverage zone in the three oblasts: Fergana oblast – 4751 hectares, Andijan oblast – 6795 hectares, Namangan oblast – 5298 hectares. The total project coverage zone accounts for 16844 hectares. The project activity is based on coordination of activities and partner relations of various organizations from scientific research institutes to BISAs and WUAs as the basis of advisory activity for farms in the Uzbek part of the project. For today, within the project coverage zone works on training of trainers (trainings, totally 34 trainings were spent and 827 participants were trained), training and consultation for farmers were conducted, monthly bulletins (7600 copies), recommendations (3600 copies), and also booklets (160 copies), publications-recommendations for farmers through mass media – 92658 copies were published and disseminated. Work on organization of activity of field farmer schools is carried out, monitoring in farms and questioning for definition of needs of farmers are carried out. Since 2010, work on full equipping of farms with water measuring devices at pilot WUAs of the project has started. This work is important from the viewpoint of system water use and more precise regulation of water use plans among farms.

Also, he dwelt on studying and analysis of problems among farmers - staffing, agrotechnical, water related, financial and legal problems. He also listed plans for a non-vegetation period: revision of training themes for trainers based on testing results, conducting training of trainers program, keep working with trainers and farmers, adaptation of a daily water distribution method practically, search of water saving agrotechnical methods, care of grains, autumn-winter field activities, gathering yield, tillage, leveling, etc., construction of water measuring and regulating structures, preparation of annual reports.

He finished his report with the following proposals: to assign staff for water accounting in pilot WUAs at the expense of the project (3 employees), to equip pilot WUAs with office equipment

(3 pcs) and a computer for the National Office (notebook), to provide trainers with bicycles (13\*2=26 pcs), study of experience of developed countries in the sphere of extension services.

**Kh. Khodjiev, the Project Oblast Coordinator, Tajikistan:** In the report Khodjiev told about the project implementation in Tajikistan. Activity on knowledge dissemination and experience, and training of farmers is carried out in 6 oblasts of Sogd oblast. The project coverage area is 6657 hectares. Talking about the project achievements this year, he noted the role of the Coordination Council whose purpose is to coordinate work of all partners of the project, arrange clear operative interrelation of partners and involvement of other interested organizations working in the field of providing services to dekhan farms. The basic function of the Coordination Council is to coordinate work of the project executors, control execution of YOP and the project implementation, dissemination of materials of the project to other organizations working in the field of providing services to farmers.

The fact that for today the farmer has indeed realized the necessity of organization of a water accounting system, having felt considerable economic benefit of actual water volume measurement, that in turn positively influences rational use of irrigation water can be considered as the important result of the project and the first step in development of advisory activity with farmers. For this purpose, executors of the project have prepared all necessary documents allowing farmers already in 2010 to pass to contractual system of the water account.

Within the oblast, 116 out of 166 farms transferred to payment for actual water received by means of water accounting. Others are in the process of transition- explanatory work among WUAs is in progress.

Further, talking about positive side of this year, it was noticed that the allocated microcredits for carrying out agricultural works from banks (with help of our consultants), high price for cotton, advancing cotton growing and free sale will allow the farmer to receive good results this year.

**Sh. Alybaev, Osh Field Office Coordinator, Kyrgyzstan:** In his report S. Alybaev noticed that organization of a water distribution system within small areas of farms at off take level is considered as an important achievement of the project. Unfortunately, the inter-farm network is uncontrolled and it is the main reason of all problems connected with use of water at farm level and inefficient work of WUAs. The method proposed by the project allowed supervising a water supply and water distribution system between farmers' fields and raising water saving at the expense of interest of the farmer in fund savings. Including, it was possible to eliminate disputes concerning water distribution. This system allowed eliminating conflict situations between farmers and organizing water distribution within the off take. Distribution is made based on crop patterns and water volume in the off take head. The leader in the certificate of acceptance-transfer with WUA sees the water discharge which he measures together with the WUA hydrometer. In the certificate of acceptance-transfer, there is measured discharge, date and time. Then the off take leader calculates the area the water received in the off take head can provide. For this purpose, he defines for how many simultaneously irrigated furrows the received water can be distributed. Contractual relations with leaders of off takes are applied inside WUAs.

Six Extension Services were established from Osh RAS within the coverage zone of its organization which worked with off take leaders in close contact on consulting of farmers in effective water use.

**Toktosunov S, Regional Manager in Osh RAS, Kyrgyzstan:** Dissemination is the role of Osh RAS in the project. This year we trained consultants and farmers in water accounting, and there is feedback control. There was dissemination in 6 demo plots in 4 rayons of Osh oblast. In

Aravan rayon we established 2 demo plots as this rayon is located in the lower part of Osh oblast, and thus there are always problems with irrigation water. Long furrow irrigation (150-200 meters) as well as lack of knowledge in irrigation time, not following irrigation time and agrotechnical measures norms is one of farmers' problems. Following the advice of Osh RAS, farmers started to apply a furrow irrigation method in their fields (50-60 meters) that produced a good result.

Unsolved farmers' problems and needs were listed: purchase of new farming machines, lack of farming machines and equipment, crop rotation is not followed due to small areas, appearing of some problems at transition to volume-based payment for water, high prices for fuels and lubricants, seeds, mineral fertilizers and pesticides, production distribution, low prices for wheat and vegetables.

Also the report included plans for the non-vegetation period, farms activity analysis, economic analysis of farms, planning of farms activity for the next year, teaching of farmers, planning of extension services activity for the next year, preparation of modules, hand-outs and brochures, training of trainers (professional development).

**Abdyrazakov B., Head of WUA Support and Development Department, Kyrgyzstan:**

Generally, within Osh oblast farmers paid for water delivery services on a per hectare basis. Water use planning from WUAs was made only up to canal level and there are off takes of water users further from the canal. Water delivery rationing for each off take was not made, water discharge for each off take was not fixed due to lack of water measuring devices and hydroposts.

Due to the project, water measuring devices (SANIIRI hydroposts, fixed channel, Tomson weir) were constructed and depth gages were installed at all necessary off takes of a chosen canal. As a result of equipping off takes with water measuring devices we were successful to interest farmers in effective use of water received by them from the off take leader.

The system for measurement of water discharge to a furrow depending on a field slope and taking into account mechanical structure of soils is developed together with Kyrgyz Research Institute for specification of irrigation parameters in farmer's field and their further use.

Monitoring of the existing state of irrigation water use and applied agrotechnical measures in each farm was conducted. On the basis of the prepared forms for monitoring based on a technological scheme of cultivated crops, advisory work with farmers on dissemination of advanced technologies was carried out.

The principal causes reducing efficiency of water were revealed. Two brochures were prepared and handed out for elimination of shortcomings and satisfaction of farmers' requirements in carrying out irrigation and agro-technical measures.

Also, in 2010 the following was organized: a water accounting system at offtake level, along with drawing-up of acts on transfer-acceptance of irrigation water; drawing-up and signing contracts on behalf of farmers on water receiving and volumetric payment for water; request-based water distribution among farmers; all offtakes of pilot canals are equipped with water measuring devices; organization of trainings, workshops and demonstrations; preparation of bulletins, brochures, etc.

In the beginning of the year, the task on dissemination of the project idea at regional level was set to the experts of rayon departments of support. Together with the management body of local authorities (rural district) and WUA, the question regarding introduction of "Sokolok" method at least at one WUA off take beyond the project zone was considered. It was supported in Aravan rayon in Tuyamuyun rural district by 7 WUAs. Four WUAs are introducing the system for organization of transition to volumetric water payment.

**Presentation by Isamutdinov S., Head of Advisory Service IAC , Tajikistan:** 161 farms in Spitamen, J. Rasulov and B. Gafurov districts of Sogd region are covered by the project zone. The total coverage area consists of 4623 hectares. In Spitamen and J. Rasulov districts 2 demo plots were selected and equipped.

At the beginning of the year, monitoring of farmers' needs and requirements on polling sheets prepared by research institutes is being implemented, which are then transmitted to the Information Center. Further, at the Information Center according to the monitoring results training topics are being compiled for training of trainers-distributors. Trainers transfer to farmers the acquired knowledge in addition with their own experience. The trainers themselves are trained at the Information Center. If farmers have issues or problems that can not be solved by themselves, the trainers make a request to Research Institute (Giprovodhoz) and obtain through the Information Center (SOF) a simplified version of the answer, and convey it to the farmer (feedback is being executed), i.e., the following cycle is covered: farmer - developer – Information Center –farmer.

The results of the project achieved in 2010 are the following: the farmers have realized that for improving profitability it is necessary to apply the volumetric method of irrigation water, and 25 farms have stated regarding installation of water measuring devices, farmers began to trust the recommended agro- and hydro-technologies and trainers' advices, and farmers themselves have begun to offer a seminar topics and to ask for advice from trainers. For interaction with partners and cooperation with other organizations national coordinator holds monthly meetings with all partners, and during these meetings the current progress of the project objectives and prospects for the coming month are discussed. And at the beginning of each week a workshop of partners aimed to experiences exchange and solution of acute topical issues are held. The workshop is of rotating character with the field visits. To exchange experience with other projects initiated by SEANS-TACIS, the delegation from Kyrgyzstan, Tajikistan and southern regions of Sogd visited the demonstration field Buri Kurmas and familiarized themselves with the means of water metering and water accounting.

Negotiations in terms of cooperation are being conducted. Work plan for the non-vegetation period is as follows: consultation and supervision when selecting sites and installing the water measuring devices in the farms, conducting six training seminars for farmers on arrangements of agro- and hydro-technical issues to be implemented in winter-spring period, a publication of agro- and hydro-technologies in 8 regional and local newspapers, provide training to enhance communication and methodological skills of trainers and consultants, monitoring and evaluation of the agro- and hydro-technologies proposed by farmers, office processing and analysis of the material, and writing the annual report.

In the WUA “Nurafshon” all farms are being equipped with hydro-gauging posts. The equipping aim is to provide the effective allocation of irrigation water at the level of the WUA and the efficient use of irrigation water in the farms. For this purpose, non-growing season will become a period for training of WUA “Nurafshon” specialists to compose plan of water use if gauging stations on farms are available- water allocation and water distribution in the vegetation period on the basis of existing gauging stations. Training of farmers to study water accounting system is planned.

A computer program for crop production taking into account the diversity of indicators is being developed. It is the “thinking” program in contrast to the other ones (as style of 1C account program). But its development is expensive. The program can be developed in 1-2 years or more if we do it by ourselves. If, however, we hire a designer and programmer, then the program development will take about 6 months. First, the program will be adapted to conditions in Tajikistan, and later to other countries. The program can give the best advice for obtaining maximum yield.

**Presentation by A. Khashimov, Head of Advisory Service, Zarzamin, Tajikistan:** In his report Khashimov commented that Zarzamin has existed since 2007 in Soghd region. In the first year the project scope was 1600 hectares, in total there were only 22 private farms. This year we have made a wider coverage, which amounted to more than 2600 hectares. Looking at these figures one can see how much the project has influenced and enhanced the interest of farmers to water metering. Farmers did not know that track of water could be kept, and the interaction between water suppliers and farmers has been chaotic. During the project implementation farmer's outlook has changed. Today, farmers are already litigating with provincial authorities. Sometimes the consultant fee is given in kind of crops (according to contract per cent). Such precedents are available. As you may have heard during presentations of our partners the doors of all banks are opened for farmers in Tajikistan, but, unfortunately, the money available is at very high interest rates. That is very burdensome for farmers presently. Our consultants test the farmers in the banks for loans. Our consultant reduces the bank risks and gets for this a small percentage. Solving this problem, farmers began to create camaraderie, informal groups, establish their own fund in the amount of 10000 to 30000 Somoni (\$ 10,000), and during general meeting they determine the interest rate, which ranges from 15% to 18%, which is essentially below the bank's rate.

There are investors ready to buy bio-cotton at their price, but it is one of the ways for a farmer to the the product market. There are committees which collect fines for failure of land use. Our consultants have proposed to sow "soflok, and received an excellent result (1 creamery was established). There must be an agronomist in the WUAs. Our experience has shown that in case of other structure's absence, the WUA needs an agronomist and hydrotechnician: these are 2 key figures, and they should not work separately.

**Presentation by A. Akhunova:** It was noted that the counseling system of farmers through WUAs consultant-agronomist and consultant-hydrotechnician has been set up. On the basis of farmstead in Marhamat district jointly with Minvodkhoz, a site for training of farmers was created, new hydro-gauging posts of different types have been constructed. Jointly with SANIIRI pilot studies to select the irrigation technique have been conducted (soil sampling for mechanic analysis was done, flow into furrow and furrow length were defined).

Farmers tested modern farming methods at the demo field "Gulshan Ahtachi" WUA "Nishonbay Kambar", a very rich harvest of cotton has been received.

## **Agenda:**

**Tuesday, October 5**

**1. Records of information centers on work performed in 2010 within framework of the project and plans to conduct training for trainers and training of farmers in non-growing season.** Reporters: D. Islamova, P. Zhooshev, M. Mirzaliyev and A. Kamolitdinov.

**2. Progress Report of Research Institute concerning project objectives in 2010 and the presentation of plans for non-vegetation period.** Reporters: A. Atakhanov, A. Usmonov, O.Nasonov / A.Abirov.

**3. Agro-melioration certification of farms (for example, the WUA Akbarabad).** Reporter: S. Nerozin.

**4. Work of Water-Land Commission.** Reporter: N. Mirzaev

**5. Progress Report on equipping pilot WUAs by hydro-gauging posts.** Speakers: R. Masumov and K. Jumabayev

**6. Dual-rate tariff of WUA.** Presentation by N. Gaipnazarov.



## **7. Discussion of further progress towards project objectives and proposals on the main subjects for training sessions during non-growing period in terms of equipping pilot WUAs and farms with hydro-gauging posts and drip irrigation system.**

**Report of Islamova, SOF, Tajikistan:** The main activities of the Information Center is development of information exchange and coordination of joint activities of partners, information processing, to make it available for a specific audience, preparing analytical and other materials, consultations, training seminars, etc.

The Centre operates on three components: education, information and counseling. The educational activities of the center aims to conduct training sessions for trainers-distributors of partner organizations "Zarzamin" and IAC, trainers are tested, and learning level of each participant is determined.

If the earlier activities of the center were aimed at increasing farmers' knowledge for conducting irrigation, water accounting, agricultural and technical arrangements, then in 2010 the themes affecting economic and gender aspects of private farmsteads based on the survey of farmers' needs were included in the work of the center.

In recent years, the main agricultural works have been carried out by women, because men have migrated for work. Even after men's return the situation has not changed since men do not have those connections and experience, which women have already gained. Likewise, our consultants are working on technologies which would decrease manual labor since all manual labor in agriculture is done by women.

To share experiences and provide with the simplest technology for effective using and measuring volume of irrigation water 3-day exchange visits on the topic: "Effective use of water at the field level" were implemented with organizations such as SENAS, Welthungerhilfe, "Saodat", KIS, ZOKI. Plan of activities scheduled for the non-growing season by information center, training subjects and a list of informational materials were discussed with partners and were based on needs of farmers and distributors. This list will be supplemented by data from surveys of farmers, after each accomplished training and monitoring of private farmsteads by project specialists from all partner organizations.

**Presentation by P. Jooshev, an expert on irrigation from ZOKI, Kyrgyzstan:** In his report Jooshev opined that FFS should be not only seasonal, they should be year-round, i.e. from plowing to marketing. 50% of the trainings are conducted in the field. Two innovative technologies have been developed: irrigation of rice on furrows, mixed irrigation of tomatoes with sweet corn. The downside is that not all farmers still realize that water should be measured. There is a form of assessment to detect perception and satisfaction of farmers, which is to be filled.

Achievements of the project are the following: collaboration of partners, receiving timely information about the problems of farmers. The timely receipt of necessary scientific developments and technologies, and timely resolution of issues and problems considered as topical for today. Trainers have learned to fill the registers of water metering: farmers who have received knowledge from the trainers-distributors, developed their own innovations.

**Presentation by M. Mirzaliyev, the Head of Fergana Information Center, and A. Kamolitdinov, specialist of Andijan Information Center, Uzbekistan:** In their report, the partners informed about the work accomplished in 2010, and spoke regarding plans to conduct training for trainers and training of farmers in non-growing season. They made a detailed account of progress: the trainers learned to cooperate with farmers; monitoring of agricultural

work on use of irrigation water is established and perfected; contacts with farmers located around demo plots are established; interest of farmers in counseling and recommendations prepared by Information Center is growing. Work in terms of setting up and developing activities of FFS is being implemented within 13 WUAs (separate rooms have been allocated, they were provided with visual aids and handouts). Farmers (irrigators) began to positively accept guidance and counseling prepared by the Information Center, the transformation of research findings into plain language understandable by farmer, identifying the appropriate distribution strategies and teaching approaches to transfer technology to farmers.

In WUAs “Tomchikul”, “K. Umarov”, “Soliev” farms are being equipped with hydro-gauging posts. The equipping aim was to provide effective allocation of irrigation water at the level of the WUA and the efficient use of irrigation water in the farms. For this purpose, non-growing season will become a period for training of WUA specialists to compose plan of water use if hydro-gauging posts on farms are available; water allocation and water distribution in the vegetation period on the basis of existing gauging stations. Training of farmers to learn water accounting system is planned.

Presentation by **A. Atakanov, Head of Kyrgyz Research Institute group, Kyrgyzstan:** We have already possessed the duly established AS. Our task is to develop recommendations and make them understandable for the farmer. Our archive at Research Institute contains a lot of materials which we use for our recommendations. Nine recommendations have been issued this year. Farmers were assisted in introducing technical account facilities of irrigation water through practical display, and how to mount hydro-technical fixtures on their irrigated areas:

- A device of pin furrows and registration of water through a triangular weir (Thomson) (20 pieces have been transferred)
- Improvement of polyethylene containers of 50 cm length for rationing of water in furrow irrigation (100 pieces have been transferred)
- Calibrated polyethylene tubes of 55 cm length for rationing of water in furrow irrigation (125 pieces have been transferred)
- Napkins (50x50 cm size) of plastic film for reinforcing the beginning sector of irrigation furrows from erosion have been provided.

The specified irrigation equipment has been purchased (produced) and delivered to the demonstration farm plots to equip irrigated plots by water measuring equipment and water distribution facilities. A practical demonstration of water measuring and water metering devices' installation has been made. According to request of trainers additional three recommendations for crop management technologies have been developed. Due to lack of funding (from March up to present funding is not available) implementation of additional trips to farm sites, unfortunately, was impossible. However, the work did not stop, it was continued by communicating via telephone and e-mailing to trainers, consultants, irrigation specialists, and data collecting and processing assistants. The program works of Kyrgyz Research Institute scheduled for 2010 were fully implemented, except for the introduction of irrigation on impounded bands and fertilizing using fertigation method, i.e. introduction of water-dissolved fertilizers.

Plans for the non-growing season are as follows: the 1st - writing the annual scientific and technical report, the 2nd - the final harvesting, the 3rd – assessment of commercial products, the 4th - water resources assessment, the 5th - a general analysis of the results of new irrigation technologies application and crop management, etc.

**Report of S. Nerozin, a specialist project RESP II:** To date, we have developed a passport for the field of whole WUA in Kuva district, WUA “Akbarabad”. Also, we gave them the cultivation technology of cotton and wheat, adjusted for soil and land-reclamation features. The farmers have a great interest in the elaboration of field passport. Each passport cost about \$10-15 per hectare, and farmers agreed to pay such amount of money.

**Presentation by S. Sobirov, Head of WUA “Tomchikul” from Marhamat district, and H. Fazilov, trainer- agronomist:** WUA “Tomchikul” was established in 2006 after the collapse of a large farm with area of 1300 hectares. Watering is carried out by adding local fertilizers. The communication “WUA - farmer - MTP – Information Center” has occurred with assistance rendered by the agronomist in the WUA. The position of agronomist should be introduced into the WUA staff, and he should help to farmers in water distribution, for example, regarding the issue of moisture charging. Hydrotechnician and agronomist make the round visit of the WUA within 2 days, give advice on watering. After their visits the MTP is involved. But before that, the farmer submits two applications: one application to the WUA and another one to MTP. Seminars are held once a month, but sometimes they are held twice a month, topical issues are discussed during these seminars. The equipment is not enough in WUAs. Therefore, there is no possibility to carry out land leveling. Water for 1 hectare costs 15 thousand Soum, but now the price has risen up to 18 thousand Soum, because extra 3 thousand Soum is paid for the work of an agronomist. Agronomist is working all year round. Following the recommendations the crops were treated with ammonia, and the yields increased.

**Presentation by A. Ruziev, the Head of WUA “Komiljon Umarov” of Toshlak district:** since July 11 the construction of hydraulic structures in the WUA “Komiljon Umarov” has been continued, which is scheduled to be completely equipped with 50 hydro-gauging posts. It should be noted that even today after construction of 50% hydro-gauging posts we can say that the construction of hydro-gauging posts promotes to automatically solve water allocation problems and eliminates conflicts between farmers.

Director of the WUA suggested sharing experience of the daily water allocation, and the experience and materials concerning the treatment with ammonia, that is cheaper.

**Presentation of R. Masumov** - At present about 60% of hydro-gauging posts were constructed for WFM component.

### **Outcomes:**

**I.** Good communicative interaction has been set up between partners through the establishment of the **Coordinating Council**, first in Tajikistan, then in Uzbekistan in terms of the implementation of key actions in accordance with YOP, activities coordination and involvement of other interested organizations engaged in the sphere of providing services to farmers, an information flow between them has been organized.

**Recommended:** to accomplish analysis of the chain how far this system affected improvement of water productivity.

**II.** Approach towards the choice of trainers proved to be effective. To identify problems, needs, knowledge and services, our trainers-distributors established close contact with farmers, primarily due to the fact that they live directly in areas where they conduct individual counseling.

Consultations have been competently organized in accordance with the needs of farmers in conjunction with specialists from research institutes.

***Recommended:***

1 – the report should be added by registry of our trainers' visits, which should indicate not only when and what recommendations were given, but in case of their failure to indicate the reason.

2 – it is necessary to regularly implement monitoring of the trainers' knowledge level;

3 - to certify Information Center within the project.

**III.** This year, taking into account the agro-melioration arrangements (routing), the themes have been competently identified and a schedule of training for trainers has been structured, implementing further training of farmers through field seminars, which were also involved by experts from other WUAs and farms, as evidenced by the minutes.

**IV.** Recommendations have been promptly prepared on the basis of the proposed technologies of IWRM, archival materials of research institutes and accumulated practice materials of partners from advisory services (for example, Osh RAS, IAC) that address specific local areas in the zone of the project, which have been simplified and translated into national language.

***Recommended:***

1 – publications should be done not only as informational ones but should also be more vivid, and issued in user-friendly format.

2 - for the prompt information exchange between partners of all the republics every information center must provide regional group with all published brochures for web publishing site.

**V.** Not all is well with the establishment of Farmer Field Schools (FFS) - there is no common understanding of how it works, either it is the center for the eradication of illiteracy among farmers in the agricultural and hydrotechnical issues so to speak from A to Z, or it is the kind of counseling center / services, which still has not the clear model. For the present it is clear that consultations should be paid.

***Recommended:***

1 - a plan for FFS must be developed, a step by step trainers' work with farmers is needed.

2 – P. Zhooshev will be appointed as a focal point for the Farmer Field Schools (FFS), and within a month he will be responsible to develop and provide principles and requirements for FFS, based on the current situation and data-oriented on Osh RAS.

3 – to develop a clear model of Advisory Services.

**VI.** It is necessary to develop a program to produce a crop programming, taking into account the diversity of indicators.

**VII.** All materials, presentations of meeting should be placed on the project website CAREWIB.

**VIII.** Analyzing all results of this workshop the project activities can be positively assessed, as a basis for further development of project ideas and elaboration of future plans for further improvement and adjustment of the achievements for a maximum impact both in terms of the coverage and in terms of the content (to practically solve farmers' problems as much as possible).

**IX.** In the middle of 2011 Evaluation Mission will be held for which we should be ready.

Regional Manager of  
WPI-PL Project



Sh. Mukhamedjanov

