Watering through furrow (Kazakhstan)

DESCRIPTION

Watering through furrow

Aims / objectives: To the developing of irrigated agriculture in a valley of the river Syr-Darya is interfered the deficiency of water resources. The problem of stabilization of an agricultural production is solved due to using of the SWC approach 'watering through furrow'.

Methods: The approach provides a necessary level of accumulation of a moisture into the soils for reception of guaranteed crops. Water supply is carried out by means of watering through furrow on a farmlands from conditions of saturation of 1.5 meter layer up to a field moisture capacity. At absence of financing for reconstruction of irrigating system the water availability of the irrigated soils raises due to optimization of the watering elements. For this purpose on an irrigated field are laying furrows long 150-400 m., the distances between furrow can change from 0.7 up to 0.9 meter. Width of a furrow on top 35-40 sm., and depth from 12 up to 17 sm., depending on slope of surfaces of the ground. Experience shows that the effect of uniformity of humidifying of ground is reached at the consumption of water of 0.9 liter/sec (quantity of absorbing water in the end of furrow to absorbed volume in head). Depending on agromeliorative properties of soil, can vary from 1.1 up to 0.7 liter/sec. In view of control of a water stream at watering through furrow, make a reinforcing of headstalls of irrigating furrows by cellophane napkins (50*50sm), irrigation tubes. Watering through furrow allows to reduce the losses of water to a filtration in 2 times, on dump and evaporation in 1.5 times. Due to reduction of these losses it is possible to improve water-availability of other irrigated masses on 20-30%. The given approach allows to save water resources to apply widely technique, provides high germination and survival of cultivated cultures, and save a manpower. The soil-cultivating technique passes on dry furrow and provides high quality of interrow cultivating of soils. The waterier easily moves on a field (dry furrows) and carries out duly redistribution of water in furrows, that improves quality of watering, operating conditions of a drainage, raises uniformity of humidifying soils, reduces expanses of water for reception of unit of agricultural production.

LOCATION

Location: Southern-Kazakhstan, Kazakhstan

Geo-reference of selected sites

- n.a.

Initiation date: 2000

Year of termination: n.a.

Type of Approach

- [x] traditional/ indigenous
- [ ] recent local initiative/ innovative
- [ ] project/ programme based

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APPROACH AIMS AND ENABLING ENVIRONMENT

Main aims / objectives of the approach

The Approach focused on SLM only (Conjoining of humus horizone, deficiency of water, heavy loams, secondary salinization, filtration)

Water resources management and optimization of the watering superficial technologies of the irrigated grounds.

The SLM Approach addressed the following problems: 1. Water conservation 2. Maintenance of guaranteed crops

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

Conditions hindering the implementation of the Technology/ ies applied under the Approach

- **Availability/ access to financial resources and services**: Lack of mean for reconstraction of irrigating system Treatment through the SLM Approach: Introduction of the SWC technologies
- **Institutional setting**: Absense of essential measures on water-division Treatment through the SLM Approach: There are created the Regional structures-BWA (Basin Water Associations)

PARTICIPATION AND ROLES OF STAKEHOLDERS INVOLVED

Stakeholders involved in the Approach and their roles

What stakeholders / implementing bodies were involved in the Approach?	Specify stakeholders	Describe roles of stakeholders
local land users/ local communities	Working land users were mainly men (Proprietors on the ground are basically men), Having small plots of the graunds (till 1 ha)	
international organization	farms associations	

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

	none	passive	external support	interactive	self-mobilization	
initiation/ motivation	✓					
planning		✓				public meetings, interviews/questionnaires
implementation		✓				responsibility for minor steps; anxiety for the plots and for the future income
monitoring/ evaluation	✓					
Research	✓					

Flow chart

Decision-making on the selection of SLM Technology

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

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

TECHNICAL SUPPORT, CAPACITY BUILDING, AND KNOWLEDGE MANAGEMENT

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

Capacity building/ training

Training was provided to the following stakeholders
- [x] land users
- [ ] field staff/ advisers
- [x] politicians/decision makers

Form of training
- [x] on-the-job
- [x] farmer-to-farmer
- [ ] demonstration areas
- [ ] public meetings
- [ ] courses

Subjects covered

Geology, soil scince, ecological hydrology

Advisory service

Advisory service was provided
- [ ] on land users' fields
- [ ] at permanent centres

Advisory service is very adequate to ensure the continuation of land conservation activities; SRI has the qualified professionals carable to create service of training on places (farms)

Institution strengthening

Institutions have been strengthened / established
- [ ] no
- [ ] yes, a little
- [x] yes, moderately
- [ ] yes, greatly

at the following level
- [x] local
- [ ] regional
- [ ] national

Describe institution, roles and responsibilities, members, etc.

Type of support
- [ ] financial
- [x] capacity building/ training
- [ ] equipment

Further details

Monitoring and evaluation

bio-physical aspects were ad hoc monitored through measurements economic / production aspects were ad hoc monitored through observations There were several changes in the Approach as a result of monitoring and evaluation: Ther were developed some approaches of management of a water stream in irrigating furrow by means of reinforcing its heads (cellophane napkins, irrigation tubes, siphons)

Research

Research treated the following topics
- [ ] sociology
- [ ] economics / marketing
- [x] ecology
- [x] technology

For the varius types of soil there were developed the norms of watering, a mode of an irrigation of adricultural crops and optimization of technologies of superfisial watering

Research was carried out on-farm

FINANCING AND EXTERNAL MATERIAL SUPPORT

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

Precise annual budget: n.a.

Approach costs were met by the following donors: government (national - Kazakhstan SRI): 95.0%; local community / land user(s) (Akimat): 3.0%; other (Separate farmers): 2.0%

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

Financial/ material support provided to land users

partly financed
fully financed

equipment: machinery	✓
irrigation net	✓

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

IMPACT ANALYSIS AND CONCLUDING STATEMENTS

Impacts of the Approach

	No	Yes, little	Yes, moderately	Yes, greatly
Did the Approach help land users to implement and maintain SLM Technologies? The approach of watering through furrow, and also techniques on management of a water stream in furrows (film, napkins, tubes)			✓	
Did the Approach improve issues of land tenure/ user rights that hindered implementation of SLM Technologies?	✓			
Did other land users / projects adopt the Approach? State SPC, the Ministry of Agriculture recommends self-covernment institutions, coommittees of a Water Management and Agriculture to use developed by the SWC approach the norms of irrigating and applications of ways of reinforcing of irrigation furrows			✓	

Main motivation of land users to implement SLM
- ✓ n.a.

Sustainability of Approach activities
Can the land users sustain what hat been implemented through the Approach (without external support)?
- no
- ✓ yes
- uncertain

CONCLUSIONS AND LESSONS LEARNT

Strengths: land user's view
- Opportunity of application of the SWC approach on various types of soil with a mode of humidifying (How to sustain/ enhance this strength: To give an explication of the soil as humidifying)
- To duplicate (to expand) application of the SWC approach (How to sustain/ enhance this strength: To raise grants possibility)

Strengths: compiler's or other key resource person's view
- Loses of water to a filtration are reduced (How to sustain/ enhance this strength: Improvement of technologies of superficial irrigation)
- Saves water consumption (How to sustain/ enhance this strength: Expansion of an area of application of the SWC approach)
- Improves well-being of local population (How to sustain/ enhance this strength: Propagation of the SWC approach and training of farmers)

Weaknesses/ disadvantages/ risks: land user's viewhow to overcome

Weaknesses/ disadvantages/ risks: compiler's or other key resource person's viewhow to overcome
- The account of a slope of surface of allotments is insufficiently fulfilled Creation of the maps of land using with the indicatin of a slope of surface

REFERENCES

Compiler
Unknown User

Editors

Reviewer
Fabian Ottiger

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Resource persons
Franc Vyshepolskey (Kniv@nursat.kz) - SLM specialist

Full description in the WOCAT database
https://qcat.wocat.net/af/wocat/approaches/view/approaches_2364/

Linked SLM data
Technologies: Water-conservation technology at cultivation of the cotton in south. K
https://qcat.wocat.net/af/wocat/technologies/view/technologies_1091/
Technologies: Water-conservation technology at cultivation of the cotton in south. K
https://qcat.wocat.net/af/wocat/technologies/view/technologies_1091/

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Project
- n.a.