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ҚИШЛОҚ ВА СУВ ХЎЖАЛИГИ ВАЗИРЛИГИ



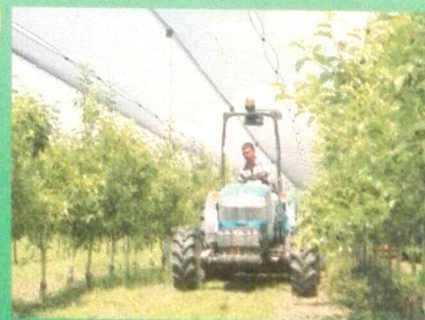
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UDK 333

SAMARQAND VILOYATIDA SUG'ORILADIGAN EKIN MAYDONLARINING UNUMDORLIGIDAN FOYDALANISH SAMARADORLIGI

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Annotatsiya. Ushbu maqolada Samarqand viloyati tumanlaridan sug'oriladigan ekin maydonlari unumdorligidan foydalanish samaradorligi tahlil etilgan. Viloyat tumanlari fermer xo'jaliklarida paxta va g'alla ekin maydonlari, yalpi paxta va g'alla hosili miqdor ko'rsatkichlari Samarqand viloyati qishloq va suv xo'jaligi boshqarmasi hamda ekin maydonlarining tuproq bonetirovka ballari Samarqand viloyat yer resurslari, geodeziya, kartografiya va davlat kadastr bo'limi hisobotlaridan foydalanilgan holda ma'lumotlar olingan. Olingan ma'lumotlar shartli tuproq unumdorligiga keltirilgan holda tuman fermer xo'jaliklarida paxta va g'allachilikda tuproq unumdorligidan foydalanish samaradorligi tahlil etilgan va ulardan foydalanish holatiga baho berilgan.

Kalit so'zlar. Samaradorlik, tuproq unumdorligi (bonetirovka ball), shartli tuproq unumdorligi, shartli hosildorlik, tuproq unumdorligidan foydalanish samaradorligi.

Kirish. Mustaqillikka erishilgandan so'ng qishloq xo'jaligida bosqichma-bosqich tarkibiy o'zgarishlar amalga oshirishi, mulk shaklini o'zgartirilishi tarmoqda qishloq xo'jalik mahsulotlarini ishlab chiqarish hajmi sezilarli darajada oshdi. Shuningdek, bu borada qishloq xo'jaligida bevosita ishlab chiqarishda qatnashadigan resurslar (suv, yer, kapital, mehnat) dan samarali foydalanishga olib keldi. Bunday qishloq xo'jaligida mulk islohatlarining olib borilishi natijasida mamlakat aholisining oziq ovqat mahsulotlariga bo'lgan talabni qondirishga e'tibor qaratilib kelinmoqda. Natijada, hozirgi kunda g'alla ekin maydonlarining umumiy yer maydonidagi ulushi 20 % ga oshgan bo'lsa, g'alla ekin maydonlari 15 foizga kamaydi. Shuningdek, xo'jalik yuritishning eng samarali shakli fermer xo'jaliklarida foydalaniladigan jami ekin maydonlarining 47 foizi paxta va g'alla ekin maydonlaridan foydalanib kelinmoqda.

Qishloq xo'jaligida ishlab chiqarish natijasi tarmoqqa kiritilayotgan resurslardan samarali foydalanishga bog'liqdir. Hozirgi kun asosiy talablari qishloq xo'jaligini barqaror rivojlanishini taminlash maqsadida resurslardan samarali foydalanilgan holda sifatli mahsulotlar ishlab chiqarish bilan bir qatorda ekinlar hosildorligi va hayvonlar mahsuldorligini oshirishga e'tibor qaratilgan. Bunda resurslardan samarali foydalanishga e'tibor bermaslik eng avvalo qishloq xo'jaligi uchun asosiy ishlab chiqarish vosita hisoblanadigan yer resurslari unumdorligining pasayishi, sho'rlanishi va ifloslanishiga olib keladi. Hozirgi kunda O'zbekistonda jami sug'oriladigan yerlarning qarib 49 foizi turli darajada sho'rlangan. Bunday tabiiy cheklangan sug'oriladigan ekin maydonlarining tuproq unumdorligining yomonlashuvi qishloq xo'jalik mahsulotlari hosildorligining pasayishiga, ishlab chiqarish xarajatlarining ortishiga olib keladi. Natijada, qishloq xo'jaligida yetishtiriladigan mahsulotlar miqdori aholining oziq-ovqat mahsulotlariga bo'lgan talabini qondirishda qiyinchiliklar tug'diradi.

Ilmiy ishning maqsadi - tuman fermer xo'jaliklarida paxta va g'alla mahsulotlarini yetishtirishda ekin maydonlarining tuproq unumdorligidan foydalanish holatiga baho berish va uning samaradorligini oshirish uchun ilmiy asoslangan xulosa va takliflar berish.

Material va metodlar. Mazkur ilmiy ish Samarqand viloyat tumanlari fermer xo'jaliklar misolida o'rganildi. Ishni yozishda mavzuga tegishli, qishloq xo'jaligida yer resurslaridan foydalanishning huquqiy asoslari va boshqa me'yoriy hujjatlar, agrar sohada iqtisodchi olimlarning

ilmiy maqolalari, Samarqand viloyati qishloq va suv xo'jaligi boshqarmasi, Samarqand viloyat yer resurslari, geodeziya, kartografiya va davlat kadastiri bo'limi hisobotlaridan hamda tahlil ma'lumotlaridan, mutaxasislarning xulosalaridan foydalanilgan holda materiallar olindi va tahlil etildi.

Tuproq unumdorligi qishloq xo'jaligining asosiy ishlab chiqarish vositasi hisoblangan yer resurslaridan foydalanish samaradorligi darajasini aks ettiradi.

Tadqiqot ishida viloyat tumanlari fermer xo'jaliklarida sug'oriladigan tuproq unumdorligidan foydalanishning iqtisodiy samaradorligini tahlil etishda natura ko'rinishdagi iqtisodiy ko'rsatkichlardan foydalanildi. Shuningdek, har bir tumanning tuproq sifati (bonetirovka ball) ko'rsatkichidan foydalanildi. Bunda barcha tumanlarning tuproq sifati (unumdorligi, bonetirovka balli) bir xil bo'lmaganligi uchun ularni shartli ko'effitsientga o'tkazildi. Bunda tumanlar (F) ning bonetirovka (B) ballarini yig'indisining o'rtachasi ($O'B = \sum B / \sum F$) aniqlandi. Bunda har bir tumanlarning shartli tuproq sifati ko'effitsientini (TsK) aniqlash uchun har bir tumanning bonetirovka (B_n) balini o'rtacha bonetirovka ($O'B$) baliga nisbati ($TsK = B_n / O'B$) sifatida qaraldi. Shartli tuproq sifati ko'effitsienti hisobiga erishilgan joriy holat (shartli hosildorlik, ShH) ni aniqlashga e'tibor qaratildi. Chunki, tuproq unumdorligi shartli bir xil bo'lganda tumanlarda sug'oriladigan yerlardan foydalanish holatini aniqlash juda muhimdir. Buning uchun tumanlarda joriy yilda erishilgan o'rtacha hosildorlik (H) ni (paxta va g'alla) shartli tuproq sifati ko'effitsientiga nisbati ($ShH_n = TsK_n / H_n$) da olindi. Sug'oriladigan ekin maydonlarining tuproq sifati (bonetirovka) dan foydalanish ko'effitsienti (samaradorligi) ni aniqlashda tuproq unumdorligi bir xil bo'lgan sharoitda erishilgan shartli o'rtacha hosildorlik (ShH_n) ni joriy yilda erishilgan o'rtacha hosildorlik ($O'H_n$) ga nisbati sifatida olinib tahlil etildi.

Natijalar. Mamlakatimiz aholisining yildan-yilga oshib borishi oziq-ovqat mahsulotlariga bo'lgan talabning tobora oshib borayotganligini inobatga olgan holda kelgusida tarmoqni yanada rivojlantirish talab etiladi. Buning uchun kelajakda qishloq xo'jaligida foydalanilayotgan sug'oriladigan ekin maydonlarining unumdorligidan samarali foydalanish talab etiladi.

Tumanlarda ushbu maydonlardan yil davomida to'liq samarali foydalanishga harakat qilinmoqda. Shuning natijasida ayrim tuman fermer xo'jaliklarida paxta va g'allachilikda bir gektar sug'oriladigan yerlardan olinadigan mahsulot miqdori yildan-yilga oshib bormoqda. Biroq barcha tumanlarda ham sug'oriladigan yerlarning unumdorligidan samarali foydalanayapti deb bo'lmaydi (1-jadval).

1-jadval

Samarqand viloyatidapaxta ekin maydonlarining tuproq unumdorligidan foydalanish samaradorligi tahlili

| No | Tumanlar | Tuproq sifati, ball | Tuproq sifati ko'effitsienti | Hosildorlik, ts/ga | Tuproq sifati 1 balli evaziga olingan hosil, ts/ga | Tuproq unumdorligidan foydalanish ko'effitsienti |
|----|---------------|---------------------|------------------------------|--------------------|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | Ishtixon | 53 | 0,930 | 25,6 | 27,5 | 1,162 |
| 2 | Kattaqo'rg'on | 58 | 1,018 | 21,2 | 20,8 | 0,879 |
| 3 | Narpay | 59 | 1,035 | 30,5 | 29,5 | 1,243 |
| 4 | Nurobod | 45 | 0,789 | 17,4 | 22,0 | 0,930 |
| 5 | Oqdaryo | 55 | 0,965 | 22,8 | 23,6 | 0,997 |
| 6 | Pastdarg'om | 60 | 1,053 | 22,9 | 21,8 | 0,918 |
| 7 | Paxtachi | 56 | 0,982 | 26,7 | 27,2 | 1,147 |
| 8 | Payariq | 57 | 1,000 | 22,8 | 22,8 | 0,962 |
| | O'rtacha | 57 | 1,000 | 23,7 | 23,7 | 1,000 |

Viloyat hududlarida sug'oriladigan yerlarning unumdorligidan to'liq foydalanilyapti deb bo'lmaydi. Masalan, Kattaqo'rg'on tumanida tuproqning unumdorlik ko'effitsienti viloyatga nisbatan 0,018 ga yuqori bo'lgan holda paxta ekilgan yerlarning unumdorligidan foydalanish ko'effitsienti 0,121 ga past bo'lgan. Shuningdek, Nurabod, Oqdaryo, Pastdarg'om va Payariq tumanlarida ham sug'oriladigan yerlarning unumdorligidan foydalanish ko'effitsienti mos ravishda 0,070:0,003:0,082:0,038 ga past bo'lgan. Sug'oriladigan ekin maydonlarining unumdorligidan

foydalanish samaradorligining pastligi ushbu tumanlarda ishlab chiqarishda bevosita ishtirok etadigan resurslardan samarali foydalanmaslik yoki resurs miqdorining yetishmasligi bilan baholash mumkin.

Tumanlarda g'allachilikda sug'oriladigan yerlarning unumdorligidan foydalanish holatiga baho berganda tumanlarning 70 % da paxta ekini ekilmaydi(2-jadval). Bu holat albatta fermer xo'jaliklarida tuproq unumdorligidan foydalanish samaradorligiga ta'sir ko'rsatadi. Natijada Samarqand viloyat tumanlarining 50 foizida fermer xo'jaliklarida g'allachilikda sug'oriladigan yerlardan foydalanish samaradorligi past bo'lgan. Masalan, Payariq tumanida tuproq sifatining koeffitsienti 0,004 ga yuqori bo'lgan bo'lsa ham g'allachilikda sug'oriladigan yerlardan foydalanish samaradorligi 0,216 ga pasaygan. Shuningdek, Sug'oriladigan yerlarning unumdorligidan foydalanish samaradorligi Kattaqo'rg'on, Bulung'ur, Jomboy, Tayloq va Samarqand tumanlarida mos ravishda 0,083:0,179:0,20:0,057:0,170 ga pasayish ko'zatilgan. Ushbu tumanlarda sug'oriladigan tuproq unumdorligidan foydalanish samaradorligini oshirishda, yuqori hosildorlikga erishishda suv, mineral va organik o'g'itlar, YoMM va mehnat sarfidan foydalanish samaradorligiga bog'liqdir.

Tuproq unumdorligi bilan olingan hosil o'rtasida bo'g'liqlikdan kelib chiqqan holda tumanlarda tuproq unumdorligini oshirishda tezpishar, kam suv talab etadigan sermahsul ekin navlari, yangi samarali texnikalar, texnologiyalar, biologik usullar amaliyotiga izchillik bilan jori yetilib, ishchi va xizmatchilarni moddiy va ma'naviy rag'batlantirish oqibatida barcha agrotexnika tadbirlari o'z vaqtida hamda sifatli bajarish lozim.

2-jadval

Samarqand viloyatida sug'oriladigan g'alla ekin maydonlarining tuproq unumdorligidan foydalanish samaradorligi tahlili

| No | Tumanlar | Tuproq sifati, ball | Tuproq sifatining koeffitsienti | Hosildorlik, ts/ga | Tuproq sifatining 1 balli evaziga olingan hosil, ts/ga | Tuproq unumdorligidan foydalanish koeffitsienti |
|----|---------------|---------------------|---------------------------------|--------------------|--|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | Ishtixon | 53 | 0,933 | 55,8 | 59,8 | 1,120 |
| 2 | Kattaqo'rg'on | 58 | 1,021 | 50 | 49,0 | 0,917 |
| 3 | Narpay | 59 | 1,039 | 57,8 | 55,6 | 1,042 |
| 4 | Oqdaryo | 55 | 0,968 | 63,7 | 65,8 | 1,232 |
| 5 | Pastdarg'om | 60 | 1,056 | 62,9 | 59,5 | 1,115 |
| 6 | Paxtachi | 56 | 0,986 | 60,4 | 61,3 | 1,147 |
| 7 | Payariq | 57 | 1,004 | 42 | 41,9 | 0,784 |
| 8 | Bulung'ur | 53 | 0,933 | 40,9 | 43,8 | 0,821 |
| 9 | Jomboy | 57 | 1,004 | 52,5 | 52,3 | 0,980 |
| 10 | Samarqand t. | 55 | 0,968 | 42,9 | 44,3 | 0,830 |
| 11 | Tayloq | 65 | 1,144 | 57,6 | 50,3 | 0,943 |
| 12 | Urgut | 55 | 0,968 | 53,9 | 55,7 | 1,042 |
| | O'rtacha | 56,8 | 1,000 | 53,4 | 53,4 | 1,000 |

Xulosa va takliflar. Qishloq xo'jaligida mahsulotlar sifat va miqdorini (hosildorlik, mahsuldorlik) oshirish eng avvalo tuproq unumdorligiga bevosita bog'liqdir. Tumanlarda paxta va g'alla ekin maydonlari tuproq unumdorligidan foydalanish holatidan kelib chiqqan holda ishlab chiqarishda bevosita qatnashadigan resurslarga alohida e'tibor qaratish lozim. Ya'ni, tuproq unumdorligiga nisbatan erishilgan yoki olingan natija paxta va g'alla hosildorligining pastligi xo'jaliklarda boshqa ishlab chiqarish omil (suv, mineral va organik o'g'itlar, YoMM, mehnat sarfi) hisobiga yuqori natijaga erishish mumkin. Shuningdek, larine miqdor va sifat darajasini oshirish hisobiga yuqori natijaga erishish mumkin. Bunda ushbu tumanlar tuproq joriy erishilgan natijadan ham yuqori natijaga erishish mumkin. Bunda ushbu tumanlar tuproq unumdorligini oshirishga e'tibor qaratish lozim.

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UDK: 333

LONG-TERM EVOLUTION OF COOPERATION AND THE SIGNIFICANCE OF TRADITIONAL SOCIAL INSTITUTIONS

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Abstract. *Cooperation is very good approaches in all branches. In Central Asia (CA) has been in different cooperation systems on using water resources. Before the independence times very different water management arrangements existed in CA. Besides, the mahalla system has been existing for long time in the region. This paper studied the water management system in ancient, and before the independence times in CA also in Uzbekistan, as well as the mahalla system and the role of the mahalla in agricultural water management. Our findings showed that in different eras CA's traditional water management and the mahalla systems do not significantly change till nineteenth century.*

Key words: cooperation, water management, mahalla, mirob

Introduction. Cooperative action has been developing for ages in CA. The region has long history of cooperation in water use and the history of water management went as far back as 8000 years ago. Archaeological evidence suggested that by 2000 years ago some 3.6 million hectares of land were being irrigated in the region (O'Hara, 2000). However, water management system, which are known as traditional system, developed after the region had come under Arab control in the 7 th century. That traditional system had been used for a long time in CA, more precisely till the Tsarist time.

Besides, some associations existed belongs to cooperative action in CA. For instance, mahalla system is one of the main association in the region for organizing cooperative action. Also, mahalla may very main role on water management.

Some scientists studied water management system in different times in CA. As well as, mahalla system also was described on some studies. This study describes some findings of O'hara (2000) on water management system in ancient and till independence time. Also, some findings of Eric W. Sievers (2002) on mahalla system in CA.

This study consists of 3 paragraphs. In the first paragraph, it will be described water management in the ancient, and before the independence times in CA. In the second paragraph the main factors that led to the deterioration of the arrangements and which aspects of past arrangement can be used to reform current management arrangements will be illuminated. And the last third paragraph the evolution of mahalla system and which lessons could be learned from urban mahallas for the management of agricultural water in Central Asia via traditional institutions will be described.

Water management in the ancient, and before the independence times in Central Asia

Water management in CA is not today's problem, it has been developing for ages. Because, CA is one the most ancient areas of irrigated agriculture in the world. O'Hara (2000) described that - "Beginning some 8000 years ago, irrigation gradually spread across the region until about 3000 years ago after which it expanded relatively rapidly. Archaeological evidence suggest that by 2000 years ago some 3.6 million hectares of land were being irrigated in the delta regions of the Amu Darya and Syr Darya alone".

Water management systems have been very different from ancient till today's time. Each era has its own rule, own way to water management. Following we will try to describe water management in the ancient, and before the independence times.

In the 13th century CA was occupied by Mongols, but the water management system did not change significantly. For example, O'Hara (2000) stated that in the 13th century, in the case of Merv city (Turkmenistan) water management system was so large in CA (figure 1). The city had access of water the Murgap River.



Over 12 000 people

Figure 1. Water management system in ancient in CA

Source: O'Hara (2000)

So, Mirab is a head of the system and over 12000 people were employed to management and maintain it in the ancient time in CA. The water users paid for the system workers.

Until nineteenth century the head of the system was as Mirab bashi as in the ancient time. But there were some other units that connected head of the system. After the mirab bashi there were some local mirabs that controlled secondary canals. As well as there were some ariq amins who were the responsible for small canals. At that time, mirab bashi and local mirabs both elected by dehqans who were the main water users. Ketmans were elected by aksakal who is a leader of the village. The financial resource for the system was supported by dehqans.

Before the independence water management was changed very different system. Determining water requirements took a bottom-up approach. Irrigation norms and the water requirements were determined in the beginning of the main growing season. The brigade leader, who is a responsible about 50-100 ha their brigades land area, calculated the water requirements. The collected dates were sent to the local districts, then regions, then republic offices and last to the office that whole of water requirements of Central Asia were collated (O'hara, 2000).

The factors that led to deterioration of water management arrangements in Central Asia

Due to conflict on water allocation among water users, it involves efficiently reform on water management. As above mentioned some water management systems had been used before. The author O'Hara (2000) studied that some of them might help for future water policies. For instance, in the traditional irrigation system, the responsible person of water allocation was the *mirab bashi* that was the most important officials of the central government. The centralized water management may appear responsibility for water users to keep of the system, being expected to contribute more. The fact that individuals could benefit as a result of their efforts gave all users a vested interest in ensuring that the irrigation network was maintained and that water was used efficiently.

The mahalla system of Uzbekistan. The role of urban mahalla for the management of agricultural water

One of the most important institutions in Uzbekistan is the mahalla. Mahalla is an urban division of Uzbek communities. Every citizen of the Republic belongs to only one mahalla.

Central Asia boasted large urban areas, and several of these areas certainly boasted communities that we might call mahalla. Samarkand was the largest city in CA. From the 8th to 12th centuries, Samarkand's population reached 500,000 under the Samanids. It also had an elaborate irrigation system, a system of dual walls and gates around the city, and 2000 areas where water and ice could be obtained from non-state sources for free.

Mahalla was one of the form of community management in the ancient. To manage mahalla was based on public works and they had its own rule. Everybody obeyed the community's rule. In the beginning of the 20th century mahalla was managed by *yuzbashi* (as aksakal). Yuzbashi controlled all public works, all local parties (toi), funerals and others.

As conclude, we may say that, in the some historical times, the mahalla system's duty was almost not changed. The main duty of the mahalla was: to do local parties together, keeping the clean their areas, education, to adhere customs and traditions etc. Besides, the head of the mahalla (aqsaqal) organized to maintenance and clean canals, local canals, to repair bridges, to clean streets and other public works. Those works had been done by hashar.

After the independence, Uzbekistan began to reform on organizing self-management system which is the same as mahalla system. In 1999, the law on self-management organ was accepted. According to the law 1999, the mahalla committee has its members which can be older than 18. The committee selects their chairperson (also called aqsaqal). Furthermore, there is secretary of aksakal, mahalla security and mahalla women's committee authorities in the modern mahalla in Uzbekistan. There are many proxies of mahalla, for example; mahalla cleans streets, protection environment - those works are done by *hashar*, as Siever, (2002) said "Uzbeks have a well-developed conception and practice of mutual assistance called *hashar* that transcends bilateral relations. Mahalla *rais* and members draw on *hashar* to motivate residents to, *inter alia*, maintain the cleanliness of streets and gutters and improve the look of their mahalla on the eve of celebrations and state holidays". Mahalla may collect voluntary financial support from juridical or physical people to develop infrastructure of mahalla, besides, mahalla may participate some actions such as to help low-income families, to levy the payment of electricity, gaz, consuming water etc.

Conclusion

After the independence, like some other CA countries, Uzbekistan also actively reformed on water management. From 1999, water users' associations were existed. But, currently water management has some problems on efficiently water use such as less impact of water users (farms) on water allocation. There is no significantly cooperation among water users. In our opinion, it is better to increase the role of water users. That is to say, they should be active on election and payment should be paid according to the quality of the work of water users associations.

Uzbek mahalla can be active on organizing cooperation among water users who are belongs to one mahalla. Even outside of these formal occasions, mahalla are a primary source of social services for community residents. In some mahalla before the independence, this aspect of mahalla life declined due to the highly active Soviet welfare state, while in others, due to post-Soviet decline, mahalla have once again superseded the state as the primary provider of social guarantees (Siever, 2002). As a conclude we may say that, some traditional systems can be used in currently to improve cooperation such as *hashar*. Besides, it is better to develop interact between water users and head of irrigation system.

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ЧИСЛЕННОЕ РЕШЕНИЕ ЗАДАЧИ АНОМАЛЬНОГО НЕИЗОТЕРМИЧЕСКОГО ПЕРЕНОСА ВЕЩЕСТВА В НЕОДНОРОДНОЙ ПОРИСТОЙ СРЕДЕ

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Аннотация: В статье численно решена задача переноса вещества в неоднородных пористых средах, состоящих из транзитных и не транзитных частей с учетом внутреннего массообмена (адсорбцией) и переноса массы в окружающую среду. Перенос в окружающую среду, внутренний массоперенос моделированы дробными производными по времени. Изучено влияние различных параметров на концентрацию вещества.

Ключевые слова: аномальный перенос, аномальная теплопередача, дробные производные, концентрация вещества, температура, численное решение.