AMUDARYO HAVZASI TO‘QAYZORLAR MUHITI

Tugai Habitats of Amudarya River

To‘qay so‘zi turkiy tildan kelib chiqib, unda Markaziy Osiyoning qurg‘oq cho‘l va passtteksiliklarida joylashgan noyob cho‘lli suvbo‘yi o‘rmonlarni ta’rifllaydi. Ko‘p hollarda "To‘qay muhiti" deganda o‘rmon hududlari nazarda tutiladi. Biroq, ekologik nuqtai nazardan bu murakkab tushuncha bo‘lib, ochiq daryo suvidan qumli yoki loyqa sohilli qirg‘oq zonasigacha, qamish shaklanadigan, zich o‘rmonlaridan, butazor va nihoyat, cho‘lni o‘z ichiga oladi. Turlarning salmoqli qismi, asosan kenja turlar mos ravishda faqat to‘qay muhitida uchraydi, shuning uchun ham ular Markaziy Osiyoning faqat ma’lum hududlarida endemik hisoblanadi.

Bioxilma-xillik qiymati bilan birga, to‘qay ekotizimi mahalliy aholi uchun ham ekotizim xizmatlarini ko‘rsatadi. Masalan, qirg‘oqlarni barqarorlashtirish uchun qum va tuproqlarni mustahkamlanishi, shamol eroziyasidan himoya qilish, yoqilg‘i va yog‘och materiallari sifatida yog‘och bilan ta’minlash, dorivor o‘simliklar, va boshqa yog‘och bo‘lmagan o‘rmon mahsulotlari bilan ta’minlaydi.

Tugai is originally a Turkic word that describes the riparian forests which are located in the Central Asian arid steppes and lowlands. Often the term "tugai habitat" is referring to the forested areas only. In ecological terms, though it is a more complex feature incorporating the transition from open water to sand or mud banks and shoreline, reed formation, dense gallery forest, fringe shrub, and finally desert. Tugai has a complex ecosystem with a high diversity of flora and fauna. A significant number of species, respectively sub-species are restricted only to tugai habitats and are therefore entirely endemic to limited areas in Central Asia.

Next to its biodiversity values the tugai ecosystems provide also many ecosystem services to the local population. Very important are for example the fixation of sand and soils for the riverbank stabilization, the protection from wind erosion, the provision of fuelwood and timber, medical plants and other non-timber forest products.

Bioxilma-xillik
Biodiversity

To‘qay ekotizim kompleksi
Tugai ecosystem

Amudaryo havzasi va unning irmoqlari
Amudarya river main basin and tributaries

Qirg‘oq bo‘yi tizimi (to‘qay) (qamishzorlar bilan qoplangan qirg‘oq bo‘yi)
Riparian system (shoreline with reed formation)

To‘qay (o‘rmon va butalar)
Tugai forest (forest, under-growth vegetation)

Buxoro bug‘usi (noyob tur)
Bukhsrian deer (rare key species)

Cho‘l va chala cho‘l
Half-desert and desert

Ekotizim hizmatlari
Ecosystem services

Saqlash obyektlari
Conservation objects

Qo‘llab-quvvatlovchi
Supportive

Oziq moddalarning sirkulyatsiyasi, shamoldan himoyalanish, tuproqni barqarorlashtirish
Nutrient cycle, wind protection, soil stabilisation

Regulyativ, tartibga soluvchi
Regulative

Suvni tozalash, iqlimni boshqarish
Water purification, climate regulation

Ta‘nimlovchi xizmatlar
Provisioning

Sug‘orish va uy xo‘jaligi uchun suv, yog‘och, o‘tin, tibbiy o‘simliklar
Water for irrigation and households, fuelwood, timber, medical plants

Madaniy xizmatlar
Cultural

Bilim tizimi, o‘quv va estetik qadriyatlar
Knowledge system, educational and esthetic values

Inson farovonligi
Human well-being

Yaxshi hayot darajasi
Good quality of life

Salomatlik va dam olish
Health and recreation

Oziq-ovqat xavfsizligi
Food security

Ijtimoiy-madaniy jihatlar
Socio-cultural aspects

Iqti sodiy daromadning asosi
Basis for economical income

1-sxema: Amudaryo havzasi to‘qaylardagi tabiatni saqlash ob‘ektlari to‘g‘risidagi sxema; Grafik amaliyotda tabiatni saqlash uchun ochiq standartlar asosida tahirlangan (Tabiatni muhofaza qilish choralari bo‘yicha hamkorlik, 2015)

Graph 1: Illustration of conservation objects of Tugai habitats in the Amudarya basin; Graphical editing based on the Open Standards for the Practice of Conservation (Conservation Measures Partnership, 2015)

Ta‘sir ko‘rsatuvchi omillar
Contributing factors

Biofizik Biophysical

Global iqlim o‘zgarishi
Global climate change

Qurg‘oqchilik va quruq iqlim sharoiti
Drought and arid climate conditions

Siyosiy Political

Yuqori oqimda joylashgan dambalar va ulardan suv olinishi
Upstream dams & water takeout

Hukumatning paxta yetishtirishga sodiqligi
Governmental commitment to cotton production

Qishloq xo‘jaligidagi hosillarga bo‘lgan talab
(Inter-)national demand for crops

Gaz va elektr yetishmovchiligi
Shortages of gas and elecricity

Faol sug‘orish tizimi
Intensive irrigation scheme

Keng sug‘orish tizimi
Extensive irrigation scheme

Intensiv paxta yetishtirish
Intense state cotton production

Institutsional Institutional

Bilimlar va hamkorliklarning kamchiligi
Gaps of expertise & cooperation

Cheklangan moliyaviy resurslar
Limited financial resources

Qonunni ijro etish tizimidagi kamchiliklar
Shortcomings in law enforcement

Himoya qilinadigan hudud boshqaruvining cheklangan imkoniyatlari/vositalari
Very limited PA capacities/means

Yovvoyi tabiatning yetarli darajada tartibga solinmaganligi
Inadequate wildlife regulation

Ijtimoiy-iqtisodiy Socio-economic

Aholi zichligining oshishi
Rising population density

Ta‘lim, maxsus bilim, tajriba va ko‘nikmalardagi kamchiliklar
Shortcomings in education, expertise, skills

Biosfera rezervati va uning tushunchasi bilan kam identifikatsiya qilish
Low identification with BR & understanding of BR

Mahalliy aholining tabiiy resurslarga yuqori darajada qaramliligi
High dependency of locals on natural resources

Daromadning kamligi, muqobil ish joylari
Lack of income, alternative jobs

Ekologik ma‘naviyat
Low environmental awareness

Qaror qabul qilishda fuqorolik ishtirokining pastligi
Low civil participation in decisions

Taxdidlar
Threats

To‘qaylarning yashash muhiti ni qisqarti ruvchi havf va qalti slik omillari
Risk and vulnerability drivers that reduce the viability of the Tugai habitats

Mintaqaviy iqlim o‘zgarishi
Regional Climate Change

Sarezning oqimining yorilishi
Upstream breakage of Sarez dam

Markaziy Osiyodagi muzliklar va suv ta‘minotining kamayishi
Retreat of glaciers and water availability in CA

Landshaft o‘zgartiradigan faoliyatlar
Landscape changing activities

Daryo oqimidan suv olish
Abstraction of water from the river course

Qishloq xo‘jalik yerlaridan intensiv foydalanish
Intensified agricultural land use

Bug‘uning populyatsiyasining oshib ketishi
Deer overpopulation

Ifloslanish
Pollution

Resurslardan nobarqaror foydalanish
Unsustainable use of resources

Qishloq xo‘jaligi va sug‘orish amaliyotlari
Agricultural and irrigation practises

Noqonuniy o‘tin yig‘ish
Illegal wood collection

Brakonerlik
Poaching

Stresslar
Stresses

To‘fon ofati
Flood Disaster

Suv tanqisligi
Lack of water

Tabiiy suv toshqini rejimining yo‘qligi
Absence of natural flood regime

Yog‘ochli biomassaning yo‘qolishi
Loss of woody biomass

Biotopdagi o‘zaro bog‘liqliklarni yo‘qolishi
Loss of biotope connectedness

Suv va oziq-ovqat mahsulotlarining ifloslanishi
Contamination of water and food items

Tuproqlarning sho‘rlanishi va eroziyasi
Salinization and erosion of soils

2-sxema: To‘qaylarning tabiiy muhitiga bo‘lgan havf va qaltislik omillarining soddalashtirilgan rasmi; graphical editing based on the Open Standards for the Practice of Conservation (Conservation Measures Partnership, 2015)

Graph 2: Simplified illustration of main risk and vulnerability drivers of Tugai habitats in the Amudarya river basin; grafik amaliyotda tabiatni saqlash uchun ochiq standartlar asosida tahirlangan (Tabiatni muhofaza qilish choralari bo‘yicha hamkorlik, 2015)

Amudaryo Markaziy Osiyoning muhim hayotiy suv arteriyalaridan biri bo‘lib, sohil ekotizimlari va insonlar rivojlanishini ta’minlaydi. Amudaryoning quyi oqimi qismidagi suv resurslariga bo‘lgan ehtiyoj juda yuqori. Global iqlimning o‘zgarishi **muzliklarni kamayishi, qurg‘oqchilik muddatini cho‘zilishi** to‘qayzorlar ekotizimi va qo‘shni hududlar aholisini zaiftigini oshiradi.

Tojikistonning Pomir tog‘larida muzliklarning erishi
Glacier retreat in the Tajik Pamir mountains

The Amudarya river is one of the life streams of Central Asia that allowed the development of riparian ecosystems and human settling. The dependence on water availability is particularly high in the lower course of the Amudarya river. Global climate change — **leading to the retreat of glaciers and an increase in droughts** — will increase the vulnerability of tugai ecosystems and adjunct human population.

Barqaror bo‘lmagan qishloq xo‘jaligi va gidroenergiya ishlab chiqarish ehtiyojlari uchun suvning ishlatilinishi doimiy yoki mavsumiy suv tanqisligini keltirib chiqaryapti. Tabiiy suv toshqining pasayishi yoki yo‘qligi to‘qay ekotizimlari uchun asosiy stress omil hisoblanadi. Natijada o‘rmon qirg‘oqlaridagi qamish va pastqam o‘simliklari yo‘qolishi yuzaga keladi.

Quyi Amudaryo Davlat biosfera rezervatida degradasiyaga uchragan tog‘ay o‘rmonlari
Degraded Tugai forest in Lower Amudarya Biosphere Reserve, Uzbekistan

The abstraction of water for agriculture and hydropower generation is causing permanent or seasonal shortages of water. For riparian ecosystems, the decline or even the absence of a natural flood regime is a major stressor. Loss of reed vegetation at the shorelines and undergrowth vegetation in the forest are the result.

Qishloq **xo‘jalik faoliyati** ko‘lami 1950/60 yillarda sezilarli darajada **kengaytirilishi** Markaziy Osiyoning daryo havzasi mamlakatlari landshaftini o‘zgartirdi. Yagona madaniyat sifatida paxtaning intensiv yetishtirilishi suvga bo‘lgan talabning oshishiga olib keldi. Qirg‘oq bo‘yi yerlarini qishloq xo‘jalik yerlariga aylantirilishi to‘qay o‘rmonlariga va ularda mavjud bioxilma-xillikka haligacha zarar keltirmoqda.

O‘zbekiston va Turkmanistonda intensiv paxta yetishtirish
Intense cotton production, Uzbekistan/Turkmenistan

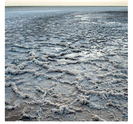
The enormous expansion of agricultural activities has changed the landscapes in Central Asian river basins since the 1950/60ies. Intense state cotton production is characterized by monoculture and very high demand for irrigation. Turning riparian into agricultural lands led and still leads to a loss of tugai forest land and the biodiversity it holds.

Hozirgi kunda 1200 dan ortiq Buxoro bug‘ulari QADRning qo‘riqxona zonasida nisbatan kichik hududida yashab kelmoqda. **Yovvoyi tabiatni boshqarish siyosati** daraxt va pastqam floraga yetkaziladigan zararni kamaytirishning aniq mexanizmlarini, fermerlar va ekinlarni payxon qiladigan bug‘ular o‘rtasidagi muammolarni hal qilishda yetarli samara bermaydi.

Quyi Amudaryo Davlat biosfera rezervatida yovvoyi tabiatni nomaqbul boshqarilishi
Unsustainable wildlife management in Lower Amudarya Biosphere Reserve

At present, more than 800 Bukharian deer are counted within the relatively small territory of the Lower Amudarya BR (core zone). **Current policies of wildlife management** do not provide adequate mechanisms to avoid damage to trees and undergrowth fl ora and to solve confl icts between farmers and deer that damage crops outside of the PAs core zone.

Nomaqbul qishloq xo‘jaligini yuritish, hamda sug‘orish (yillar davomida paxta yetishtirish natijasida) keng tarqalgan tuproq sho‘rlanishiga va zaiflashishiga olib keldi. Bir vaqtlar unumdor dalalar endi foydalanish uchun yaroqsizdir va katta qiymatga ega emas.



O‘zbekiston va Turkmanistonda tuproq sho‘rlanishining oshishi
Increasing soil salinity in Uzbekistan/Turkmenistan

Unsustainable agricultural activities including irrigation practices (induced through the decades of cotton farming) have contributed to widely prevailing salinization and erosion of soils. Once fertile fields are no longer available for further use and, also from an ecological perspective these fields are of less viability and value.

Sobiq Ittifoq tugagandan so‘ng vujudga kelgan **yoqilg‘i va elektr energiyasi tanqisligi** biomassa resurslarining mahalliy aholi tomonidan ommaviy ravishda kamayishiga olib keldi. Yog‘och va qamish o‘rmonlariga bo‘lgan talabning kamayishiga qaramay, bioxilma-xillik va biotop bog‘liqlikka shikast yetkazildi.

Quyi Amudaryo Davlat biosfera rezervatida ichki foydalanish uchun o‘tinga bo‘lgan talab
Demand of fuelwood for domestic use in Lower Amudarya Biosphere Reserve

After the collapse of the Soviet Union, **the absence of a regular supply of fuel and electricity** led to massive depletion of biomass resources through the local population. While the pressure on timber resources along the riparian forests has increased, biodiversity and biotope connectivity is dramatically reduced.

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