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# NORDIC SCIENTIFIC-PRACTICAL E-JOURNAL

## VOLUME-7

# NORDIK ILMIY-AMALIY ELEKTRON JURNALI

## 7-SON

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# Til dekolonizatsiyasida sohalararo integratsiya ahamiyati: adabiyotlar sharhi

**Annotatsiya:** Ushbu maqolada til dekolonizatsiyasida sohalararo integratsiya ahamiyatiga e’tibor qaratiladi. U tegishli adabiyotlarning sharhi bo‘lib, to‘rt qismga bo‘lingan. Avvalo, til ta’limi va dekolonizatsiyasini birga o‘rgangan tadqiqotlar tahlil qilinadi. Ikkinchidan, til ta’limida his-tuyg‘ular o‘rni haqidagi izlanishlar ko‘rib chiqiladi. Uchunchidan, til dekolonizatsiyasi, ta’limi va tegishli his-tuyg‘ular kabi uchta soha kesishgan yo‘nalishda olib borilgan tadqiqotlar tahlili tadqim etilib, muhim bo‘shliqlar aniqlanadi. To‘rtinchidan, dekolonizatsiya bilan hamisha yonma-yon turuvchi ijtimoiy adolat yetishmasligining asosiy ko‘rninishlari muhokama qilinadi. Maqola so‘ngida tahlil qilingan adabiyotlardan kelgusi izlanishlar uchun xulosalar chiqariladi.

**Kalit so‘zlar:** til, dekolonizatsiya, ta’lim, his-tuyg‘ular, ijtimoiy adolat

## Kirish

Dekolonizatsiya deyilganda, keng ma’noda mustamlakachilik asoratlaridan voz kechish tushuniladi. Mustamlakachilar o‘z hokimiyatini o‘rnatmoqchi bo‘lganda, eng avvalo o‘ziga qaram xalqning ta’lim tizimini, xususan til ta’limini isloh qilishga shoshadi. Bunday “islohotlar” qaram xalqning ona tilini ahamiyatsizlantirishga, ikkinchi til sifatida o‘rganishga yoki umuman yo‘q qilishga xizmat qilishini tasqidlovchi tarixiy misollar talaygina. Ma’lumki, til - dil kaliti, millat ko‘zgusi, uning dunyoqarashini aks ettirayotgan bo‘lib, qaram xalq esa ushbu ko‘zguga va umuman tashqi dunyoga o‘z ko‘zi bilan emas, balki, mustamlakachining ko‘zi bilan qarashi kerak deb hisoblangan. Aynan shuning uchun til dekolonizatsiyasi til ta’limidan boshlanishi kerak.

Mustamlakalikning yana bir e’tiborga molik jihati bor. U mustaqillikni qo‘lga kiritish bilan o‘z o‘zidan yo‘qolib ketmaydi, chunki mustamlakachining mantig‘i mustaqillikka erishgan xalqning turmush tarzida yoki rasm-rusumlarda bo‘lmasa ham, uning oldin isloh qilingan ta’lim tizimida, tilida va til orqali tafakkurida yashrin davom etadi. Bunday yashrin mustamlakachilikka esa faqat his-tuyg‘ular bilan zarba berish mumkinligi ta’kidlanadi (Zembylas, 2022). Ko‘rinib turibdiki, ushbu uchta soha, ya’ni til dekolonizatsiyasi, til ta’limi va his-tuyg‘ular o‘rtasida muayyan bir boq‘liqlik borga o‘xshaydi. Ammo shu bog‘liqlik qanchalik o‘rganilgan? O‘rganilsa, ilmiy hissasi bo‘ladimi?

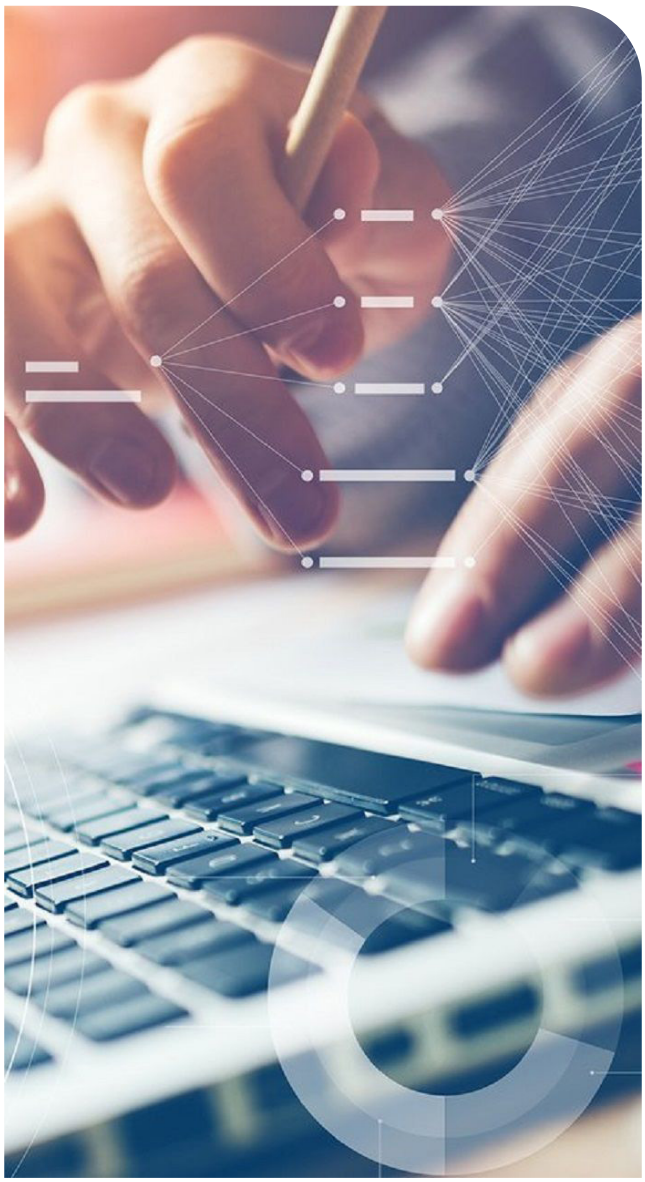
Ilmiy hissaning o‘ziga xosligi nafaqat noyob geografik va ijtimoiy-siyosiy kontekstga aloqadorligida, balki tadqiqotning kengroq ahamiyatida namoyon bo‘ladi (Baptista va boshq., 2015). Shuning uchun mazkur sohalarda ilmiy tadqiqotlarni ko‘rib chiqish juda muhimdir. Quyidagi kichik bo‘limlar ikkinchi til ta’limi, til dekolonizatsiyasi va his-tuyg‘ular kesishmasidagi asosiy ilmiy yutuqlarni umumlashtiradi hamda ba’zi e’tiborga loyiq bilim bo‘shliqlarini aniqlaydi.

## Ikkinchi til ta’limi va dekolonizatsiya

Ikkinchi til ta’limi tadqiqotlari 1990-yillarda sohada ijtimoiy-madaniy burilish yuz berguniga qadar mustamlakachilik va unga aloqador masalalarni ko‘rib chiqmagan (Chen va Lin, 2023). So‘ngra, ikkinchi til ta’limi va dekolonizatsiya o‘rtasidagi muammolar izlanuvchilarning ilmiy qiziqishini uyg‘otib (masalan, McIvor, 2020), mustamlakachilik va uning til o‘rganishga ta’sirini yaxshiroq tushunishga olib keldi (masalan, Migge va Leglise, 2008; Jahan, 2024). Soha olimlari mustamlakachilik til iyerarxiyalarining rivojlanishiga hissa qo‘shganini, turli tillarga turli maqomlar, kuchlar, kapitallar va foydalanish doiralarini berganini hamda shular orqali postkolonial jamiyatlarda ularga nisbatan tegishli munosabat shakllanganini ta’kidlaydilar (masalan, Phillipson, 1992; Pennycook, 2002; Igboanusi va Peter, 2004; Migge va Leglise, 2008; Brenziger, 2017; Macedo, 2019).

Bu sohadagi hozirgi tadqiqotlar til ta’limi dekolonizatsiyasi, ya’ni uning rivojlanishi va qo‘llanilishi bilan ham bog‘liq. Tadqiqotchilar (masalan, Ortiz, 2009; Chew, Leonard va Rosenblum, 2023; Phyak va boshq., 2023) bunday ta’lim yashirin mustamlakachilikni fosh qilib, ozchilik so‘zlashadigan tillarni o‘quv dasturiga kiritib, hukmron til mafkuralariga tayanmasdan madaniy jihatdan mos usullarda o‘qitish orqali ularni kuchaytiradi, deb ta’kidlaydi. Ikkinchisini, ayniqsa o‘zlikni anglash bilan kesishgan nuqtada o‘rganish alohida tadqiqot yo‘nalishidir. Adabiyotlardan (masalan, Gu, 2010; Norton va Toohey, 2011; McKay, 2013; Lou, 2021; Meighan, 2023) shunisi ma’lumki, hukmron til mafkuralari ko‘pincha: 1) “standart” tillar “nostandart” tillardan ustun degan fikrni ilgari surib, oxirgisining chetga surishi; 2) til ta’limiga ta’sir ko‘rsatib, muayyan bir tilni o‘rganishda kim muvaffaqiyatli, kim esa muvaffaqiyatsiz ekanligini belgilab qo‘yishi; 3) odamlarni hukmron til standartlariga rioya qilishga majburlab, ularning qadrini pasaytirishi va milliy o‘zligini anglashlariga salbiy ta’sir ko‘rsatishi mumkin.

Bundan tashqari, ikkinchi til ta’limi va dekolonizatsiya kesishmasidagi zamonaviy tadqiqotlar asosan til jonlantirish va saqlashga qaratilgan (masalan, Fishman 1991; Fettes, 1992; Reyhner va Tennant, 1995; Maurais, 1996; Kirkness, 1998; McCarty, 2008; Hinton, 2014; King va Hermes, 2014; Stacey, 2016; Johnson, 2017; Green va Maracle, 2018; McIvor, 2020). Bu esa Afrika, Amerika qit’alari va Okeaniyadagi ko‘plab yo‘qolish xavfi bor mahalliy tillar uchun katta ahamiyatga ega. Ushbu tadqiqotlardagi asosiy argument - til orqali birovning madaniy merosini tiklash, tub aholining fikrlarini hisobga olish, ularga kuch-g‘ayrat bag‘ishlash, ikkinchi til o‘rgatish metodikalarini moslashtirish va ko‘p tillilikni targ‘ib qilishni o‘z ichiga olgan ko‘p qirrali strategiya zarurligi. Ko‘p tillilik esa



translingvizm bilan birga, hozirda eng jadal o‘rganilayotgan sohalardandir (masalan, Ortega, 2019; Duff, 2019; Wei va Garcia, 2022).

Shu bilan birga, ushbu sohada muhim bo‘lgan ba’zi jihatlar hali atroflicha o‘rganilmagan. Birinchidan, til ta’limi bilan dekolonizatsiyaning nazariy jihatlari bo‘yicha adabiyot empirik tadqiqotlardan ko‘ra ko‘proq (masalan, MacSwan va Rolstad, 2024). Bunday tadqiqotlar esa til ta’limida dekolonial yondashuvlarning til o‘rganilganlik darajasiga va o‘zini anglashga ta’siri (yo‘qligi) haqida qimmatli ma’lumot berishi mumkin. Ikkinchidan, ikkinchi til ta’limi va dekolonizatsiyasi kesishmasidagi tadqiqotlar o‘zlik xususiyatlarini (masalan, millat) (Norton va De Costa, 2018) va til o‘rganish muhitining ayniqsa postkolonial til o‘rganish tajribasiga (Reinders, Lai va Sundqvist, 2022) qanday ta’sir qilishini yanada batafsil o‘rganishi lozim. Nihoyat, ushbu sohalarda zamonaviy tadqiqotlar asosan G‘arb olimlari tomonidan olib boriladi (Selvi, 2024). Ular ikkinchi til ta’limidagi amaliyotlarni



diqqat bilan ko‘rib chiqib, dekolonizatsiya tamoyillariga rioya qilish uchun ularni isloh qilishga harakat qilmoqda. Bu esa til o‘rganish uchun yanada adolatli va inklyuziv muhit yaratishga xizmat qiladi. Albatta, faqatgina Global Janub olimlari tomonidan olib borilayotgan tadqiqotlar sobiq mustamlakalardagi dekolonial dinamikani tushunishda yetarli vosita bo‘lmaydi deb tan olish kerak, biroq Global Janubdan ko‘proq ovozlarni, xususan til o‘qituvchilari, faollar, olimlar va umuman olganda, Osiyo, Amerika, Afrika hamda Okeaniyadagi tub aholi vakillarini eshitish muhim. Yuqoridagilarning barchasi o‘zbek tilini ikkinchi til sifatida o‘rganayotgan o‘zbek fuqarolarining hissiy tajribalari va (de)kolonial qarashlarini o‘rganishni juda dolzarb qiladi, va bu keyingi tadqiqotlarimizda amalga oshiriladi.

## Ikkinchi til ta’limi va his-tuyg‘ular

Ikkinchi til ta’limi tadqiqotchilarining his-tuyg‘ularga qiziqishi ularning til dekolonizatsiyasiga qiziqishidan farqli o‘laroq, deyarli o‘n yil oldin, ya’ni 1980-yillarda boshlangan. Ikkinchi til ta’limi tadqiqotchilari hozirda his-tuyg‘ularni til o‘rganishning markaziy unsuri sifatida ko‘rib (masalan, Dewaele, 2010), bu jarayonga va uning natijalariga ta’siri katta deb bilishadi. Aftidan, bu sohalar kesishmasidagi eng ko‘p tadqiqotlar aynan til ta’limining hissiy jihatlarini o‘rganishga bog‘liqdir.

Ikkinchi til ta’limidagi hissiyotlarni o‘rganish xavotir (masalan, Horwitz, 1986) va motivatsiya bo‘yicha amaliy tadqiqotlar bilan boshlanib (masalan, Gardner va Smythe, 1981; Dörnyei, 1994), ularga ilmiy e’tibor keyingi 30 yildan beri deyarli pasaymagan. Biroq vaqt o‘tishi bilan olimlar boshqa hissiyotni ham o‘rgana boshlagan. Masalan, Teimouri (2019) empirik tarzda aybdorlik ikkinchi til o‘rganishga yordam berishini, uyat esa unga to‘sqinlik qilishini aniqlagan.

Qiziqarli tomoni shundaki, til o‘rganishga bo‘lgan motivatsiyani oshirish va unga bog‘liq xavotirni kamaytirish/nazorat qilish istagi, shuningdek, talabalarning o‘zlarini har tomonlama yaxshi his qilishlarini ta’minlashga kuchaygan e’tibor 2010-yillarda ijobiy his-tuyg‘ularning ikkinchi til o‘rganishga ta’sirini ko‘proq tadqiq qilishga olib keldi. Til ta’limida ushbu yo‘nalish ijobiy psixologiya nomini olib (MacIntyre, 2021), til o‘rganish zavqi (masalan, Zheng va Zhou, 2022; Resnik va Schallmoser, 2019; Dewaele va MacIntyre, 2014), dadillik (masalan, Goetze va Driver, 2022), o‘z qobiliyatlariga ishonch (masalan, Mercer, 2011; Young Kyo, 2021) kabi ijobiy his-tuyg‘ular haqidagi yangi izlanishlarga turtki bo‘ldi. Bu ikkinchi til ta’limining hissiy masalalari bo‘yicha tadqiqotlar doirasini kengaytirishga olib keldi.

Ikkinchi til ta’limining hissiyotga bog‘liq jihati haqida gapirganda, unga norasmiy ta’lim ta’sirini inobatga olish zarur. Ma’lumki, ota-bobolar tili maktab/universitetda tahsil olish tilidan farq qilsa, unga munosabat va u orqali milliy ong asosan oilada va eng yaqin davrada shakllanadi (Schalley va Eisenchlas, 2020). Ikkala til ko‘nikmalarini baravar rivojlantirish, ya’ni uyg‘un ikki tillilikni ta’minlash bolalar uchun muhim, lekin ko‘pincha bolalarning ta’lim tili uyda

ota-bobolar tilini siqib chiqaradi. Bu holat ba'zan ota-onalar tomonidan rag'batlantirilib, bolalarni oilalaridan uzoqlashtiradi (De Houwer, 2020). Natijada bola ota-bobolar tilida muloqot qilishdan cho'chib qochishi va uni past darajada bilishi kuzatiladi (Sevinç, 2020).

Bundan tashqari, bolalarning milliy ongi uchun oilalarining uyda ota-bobolar tilini saqlashi juda muhim ekanligi ko'rsatilgan (Tseng, 2020). Ota-bobolar tilini yuqori darajada bilish uzoq qarindoshlar bilan samarali muloqot qilishga va avlodlararo muammolarning oldini olishga yordam beradi (Purkarthofer, 2020). Ko'pincha oilaning til siyosatini ota-onalar tanlashiga qaramay (Curdt-Christiansen va Huang, 2020), bolalar til tanlovida mustaqillikni namoyon etib, oilada odatda ikki tillilik o'rnatilishiga sababchi bo'lishadi. Ammo ular uchun ta'lim tilini bilish nihoyatda muhim, chunki ular kengroq muhitdan chetda qolishni istamaydilar (Smith-Christmas, 2020).

Aslida, ikkinchi til ta'limi va hissiyotga oid tadqiqotlar ikkinchi til o'rganish jarayonidagi ishtirokchilar sonining ortib borishiga (masalan, Sudina va boshq., 2021; Martin, 2023) qaramay, doimiy ravishda yangi usullarni o'rganish (masalan, MacIntyre, 2012; Driver, 2021) va turli yondashuvlardan foydalanish yo'lida ketgan. Globallashuv muammolari va ikkinchi til ta'limiga oid tadqiqot tashabbuslari ushbu ilmiy sohaning mavjud chegaralarini kengaytirmoqda. Ular yangi qarashlar, hissiy jihatlar va epistemologiyalarni ko'rib chiqishda davom etib, ijobiy psixologiya va ijtimoiy adolatga tobora yaxshiroq bog'lanishni ta'minlaydi (Zhou va boshq., 2021; Mercer va Gregersen, 2023).

Ikkinchi til ta'limining hissiy jihatlarini o'rganayotgan tadqiqotchilar soni ortib borayotgani, albatta, turli omillar va sharoitlarni hamda ularning til o'rganishga ta'sirini tadqiq etishga imkon beradi. Ammo tegishli adabiyotlarda turli til o'rganish muhitlarining xilma-xilligi va til o'rganuvchilarning sotsiolingvistik xususiyatlari kabi masalalar hali to'laligicha hisobga olinmagan. Mavjud adabiyotlar asosan maktab yoki universitet muhitidagi vaziyatlarni yoritadi. Ikkinchi til ta'limining hissiy jihatlari haqida esa rasmiy ta'lim kontekstidan tashqarida ko'p ma'lumot yo'q (Driver va Prada, 2024). Biroq bunday tajribalardan o'rganish til o'zlashtirishni yaxshilashga yordam beradi.

Bundan tashqari, mavjud empirik natijalar xalqaro miqyosda qanchalik ishonchli ekanligi haqida savol tug'ilishi mumkin, chunki G'arb ta'lim muhiti hozirgacha tadqiqotchilarning eng ko'p e'tiborini tortgan. Mavjud adabiyotlarning aksariyati ingliz tilini ikkinchi til sifatida o'rganuvchilarga yoki Italiya (MacIntyre va Vincze, 2017), Ruminiya (Pavelescu va Petric 2018; Dewaele va Pavelescu 2021), Vengriya (Piniel va Albert 2018) va Kanada (Boudreau, MacIntyre va Dewaele 2018) kabi g'arb mamlakatlaridagi vaziyatga bag'ishlangan (Driver va Prada, 2024). Shu sababli yuqoridagilardan farqlanib turadigan madaniy va lingvistik profiliga ega ikkinchi til o'rganuvchilarning kechinmalarini va ularning ahamiyatini aniqlash uchun ko'proq tadqiqotlar zarur. Keyingi tadqiqotlarimiz nog'arbiy kontekstdagi o'zbek tilini ikkinchi til sifatida o'rganayotgan o'zbek fuqarolarining hissiy tajribalariga e'tibor qaratib, yuqorida aytilgan bo'shliqlarni samarali to'ldiradi.

## Dekolonizatsiya va ikkinchi til ta'limining hissiy jihatlari

Til dekolonizatsiyasining ta'lim kontekstidagi hissiy jihatlari bo'yicha tadqiqotlar nisbatan kamroq. Biroq til tiklashning hissiy jihatlari va dekolonizatsiya jarayonidagi tizimlarda til o'rganuvchilar duch keladigan qiyinchiliklarni ko'rsatadigan adabiyotlar yo'q emas. Mazkur bo'lim ushbu sohadagi muhim tadqiqotlar tahliliga bag'ishlanadi.

Bu sohada o'rganilgan asosiy masalalardan biri til bilan hissiy bog'liqlikdir. Ba'zi tadqiqotlarda (masalan, Goodin, 2015; Hinton, Huss va Roche, 2018) tub aholining ota-bobolar tili bilan hissiy bog'lanishi, til yo'qolishining halokatli ta'sirlari va tiklanish urinishlarining qiyinchiliklari o'rganilgan. Masalan, til yo'qotish bilan bog'liq uyat yoki til tiklash bilan bog'liq g'urur haqida tadqiqotlar mavjud (masalan, Low, McNeill va Day, 2022; Hamley, 2023).

Bu sohadagi olimlarning qiziqishini uyg'otgan yana bir muammo - til yo'qotish oqibatidagi travma. Bir qator tadqiqotchilar imperiya tillarining qaram xalqlar tillariga ustunlik qilishi natijasida oila ichida va tashqarisida avlodlararo travma yuzaga kelganini ko'rsatgan (masalan, Khawaja, 2021; Napier va Whiskeyjack, 2021). Ushbu sohadagi ishlar til jonlantirish harakatlari tub aholida tegishli travmani yengib o'tishga va madaniyatini qayta tiklashga olib kelishini qayd etgan (masalan, McKenzie, 2022; Whalen va boshq., 2022).

Bu sohada o'rganilgan yana bir jihat bu til bilan bog'liq hayajon va til orqali o'z-o'zini anglashdir. Tadqiqotchilar (masalan, Nee, 2021; Lane, 2023) til bilan bog'liq hayajon va uning til o'rganuvchilarga ta'siri, shuningdek, o'ziga ishonch pasayishi, xatolardan qo'rqish va o'z haqida salbiy tasavvur shakllantirish kabi holatlarni o'rganishgan. Ushbu natijalar til jonlantirish uchun muhimdir, chunki ular o'quvchilarga ota-bobolar tilini hissiy jihatdan xavfsiz muhitda qayta kashf etishda yordam beradi (Achilles, 2018).

Til egalari hamjamiyatlarini qo'llab-quvvatlash bu sohada tadqiqot uchun yana bir istiqbolli yo'nalish hisoblanadi. Tegishli tadqiqotlar til jonlantirish bo'yicha shunday hamjamiyatlarga qanday yordam berish mumkinligini hamda hissiy qo'llab-quvvatlash tizimlari, avlodlararo o'rganish va o'zlikni shakllantirishning ahamiyatini ko'rsatadi (masalan, Wiltshire,

Bird va Hardwick, 2021; Sallabank va King, 2022; Susemihl, 2023). Hamjamiyat faoliyatining hissiy tomonlarini chuqur bilish til jonlantirish uchun madaniy jihatdan mos yondashuvlarni rivojlantirishga xizmat qilishi mumkin.

Bundan tashqari, bu sohadagi ba'zi ishlar til mafkuralari va stigma masalalariga qaratilgan. Tadqiqotchilar (masalan, Lee, 2009; Madhukar va boshq., 2023) tillar haqidagi turli aqidalar, e'tiqodlar va noto'g'ri tushunchalarni, jumladan qoliplashgan fikrlar, lingvotsid va ba'zi tillarning past maqomi haqidagi keng tarqalgan qarashlarni o'rganishgan. Shu yo'nalishdagi tadqiqotlar til jonlantirishda hissiy to'siqlar va tizimli adolatsizliklarni bartaraf etib, tegishli mafkura va stigmaga qarshi kurashish zarurligini ko'rsatadi.

Yuqorida sanab o'tilgan mavzulardan tashqari, ushbu sohaning hozirgi tadqiqotlari til jonlantirish va o'zlikni anglash kesishmasidagi masalalariga ham bag'ishlangan. Ba'zilari til tiklanishining shaxsiy va jamoaviy tarixlariga asoslangan tadqiqotlar bo'lib, til o'rganish tajribalari, qiyinchiliklar, muvaffaqiyatlar va til jonlantirishning jamiyatlar hamda alohida-alohida shaxslar uchun hissiy ahamiyatini o'z ichiga oladi (masalan, Meek, 2012; Fine, 2021; Flegg, 2024). Boshqalari ikkinchi til ta'limi va dekolonizatsiyasi kesishmasida o'tkazilib, til o'rganish tajribalari va til jonlantirish harakatlari o'zlikning boshqa jihatlari, xususan millat omili ta'sirida qanday kechayotganini yoritadi (masalan, Hinton, 2013; Huang va Chan, 2024).

So'nggi yillarda til dekolonizatsiyasining ta'lim kontekstidagi hissiy jihatlari bo'yicha tadqiqotlar jadallashgan bo'lsa-da, sohada yetarlicha o'rganilmagan mavzular talaygina. Birinchidan, ko'rib chiqilgan adabiyotlar shuni ko'rsatadiki, ota-bobolar tilini tiklashga harakat qilayotgan, tub aholiga mansubligiga qaramay, bugungi kunda ozchilikni tashkil etayotganlarning hissiy tajribasi bu sohadagi tadqiqotlarning asosiy obyekti bo'lib ko'rinadi. Shuning uchun, turli qarashlarni, jumladan tub aholiga mansub bo'lmagan yoki ozchilikni emas, balki ko'pchilikni tashkil etayotgan tub aholi vakillarining fikrlarini ko'rsatish uchun ko'proq tadqiqotlar zarur.

Ikkinchidan, kontekstual omillarga tobora kuchliroq e'tibor qaratilganiga qaramay, ularning turli ta'lim muhitlaridagi hissiy jihatlarga ta'sirini tushunish uchun yanada ko'proq tizimli tadqiqotlar kerak. Bu borada rasmiy ta'lim muassasalari bunday tadqiqotlarning asosiy konteksti bo'lib qolayotganini oldin ta'kidlab o'tganmiz (Driver va Prada, 2024). Shu sababli oila va keng ijtimoiy doiralar kabi norasmiy til o'rganish muhitida ko'proq empirik tadqiqotlar olib borilishi lozim.

Uchinchidan, his-tuyg'ular va o'zlikning til o'rganishga ta'sir qilishi keng tan olingan bo'lsa-da, shaxsning ayrim xususiyatlari (masalan, millati) til dekolonizatsiyasi va ikkinchi til ta'limidagi his-tuyg'ular bilan qanday bog'liq ekanligini yanada chuqurroq o'rganish zarur. Bu bo'shliq dekolonizatsiya va ikkinchi til ta'limi hamda ikkinchi til ta'limi va hissiyot kabi ikki xil kesishmada ham bor, shuning uchun tabiiyki, u ikkalasining kesishmasida ham mavjud. Bundan tashqari, tegishli tadqiqot natijalari til siyosatiga kiritilishi muhim, chunki u ta'lim muhitini shakllantirishda muhim rol o'ynab, o'quvchilarning til profiliga ta'sir ko'rsatadi, shuningdek qamrab olish va chetlashtirish orqali tilni asosiy kamsituvchi omilga aylantirib qo'yadi (Iazetta, 2024). Shu sababdan ikkinchi til ta'limidagi his-tuyg'ular orqali til dekolonizatsiyasini ta'minlaydigan amaliy tadqiqotlarga ehtiyoj bor. Mazkur bo'shliqlarni to'ldirish uchun o'zbek tilini ikkinchi til sifatida o'rganayotgan o'zbek fuqarolarining hissiy tajribalari va (de)kolonial qarashlarini o'rganish ayni muddao bo'lardi. Bunday izlanish ikkinchi til ta'limi orqali til dekolonizatsiyasining hissiy jihatlarini yaxshiroq tushunishga yordam berib, turli madaniy hamda til muhitlarida til dekolonizatsiyasi uchun samarali yondashuvlarni ishlab chiqishga xizmat qiladi.

## Ijtimoiy adolat masalasi

Tadqiqot chegaralarini ko'rsatib o'tgach, dekolonizatsiyaning ijtimoiy adolatga ta'sirini hisobga olish joiz. Dekolonizatsiya asosan ijtimoiy adolat bilan bog'liq deb aytish mumkin, chunki ijtimoiy adolat o'rnatish hamda kapitalistik mustamlakachilikning uzoq muddatli oqibatlari va zamonaviy ko'rinishlarini tanqidlash va bartaraf etish ajralmas amallardir. (Tejeda, Espinoza va Gutierrez, 2003). Biroq ikkalasining o'xshash va farqli tomonlari nimadan iborat ekanligini, shuningdek, ular amalda qanday ishlashi mumkinligini tushuntirish muhimdir.

Ularning o'xshashliklari haqida gapiradigan bo'lsak, birinchidan, dekolonizatsiya va ijtimoiy adolat uchun umumiy bo'lgan narsalar tenglik va teng huquqlilikdir (Santos, 2014). Ikkala holatda ham tizimli va tarixiy sabablardan kelib chiqqan kamsitish bilan bog'liq muammolar ko'rib chiqiladi va hal qilinadi. Ikkinchidan, dekolonizatsiya va ijtimoiy adolat chetlashtiruvchi va repressiv hukmron qarashlarga, ijtimoiy va siyosiy g'oyalarga asoslangan kuchlar muvozanatsizligini tanqid qiladi (Mignolo va Walsh, 2018). Uchinchidan, ularning isloh qilish qobiliyati (Tuck va Yang, 2012) mavjud tizimlarni moslashtirishdan ko'ra ularni to'liq qayta tuzishga qaratilgan. Nihoyat, dekolonizatsiya va ijtimoiy adolat tarixan chetlashtirilgan guruhlarni himoya qilib, ularning qarashlarini qadrlab, ularga ustuvorlik berib kelgan (Freire 1978). Til ta'limi amaliyotida dekolonizatsiya va ijtimoiy adolat yondashuvlari o'rtasidagi o'xshashliklar quyidagi masalalarda: 1) tillarni boylik va qashshoqlikka bog'lashda; 2) epistemitsid, ya'ni til rivojlanishi uchun zarur bo'lgan bilim tizimlarini yo'q qilib, til rejalashti-

rish, til maqomi, til ta'limi, tildan foydalanish doirasini kengaytirish, o'quv materiallarini va adabiyotlarni yaratish kabi jihatlarni nazorat qilishda; 3) ikkinchi darajalilik, uyat (masalan, shevalararo farqlar sababli) va hurmatsizlik (masalan, ayrim tillar ba'zi nuqsonlarga ega degan noto'g'ri tushunchalar sababli) uyg'otishda (Roche, 2019) yaqqol ko'zga tashlanadi. Bu muammolarni hal qilish ham ijtimoiy adolatga, ham dekolonizatsiyaga olib kelishi mantiqiy ko'rinadi.

Shu bilan birga dekolonizatsiya va ijtimoiy adolat o'rtasida muhim farqlar mavjud. Birinchidan, dekolonizatsiyadan farqli o'laroq, ijtimoiy adolat, mustamlakachilik natijasida yuzaga kelganmi yoki yo'qmi, barcha tizimli tengsizliklarga e'tibor qaratadi (Tuck va Yang, 2012). Ikkinchidan, ularning ta'siri farq qiladi. Dekolonizatsiya ko'pincha mustaqillik va madaniy tiklanishga qaratilgan. Bu boshqa chora-tadbirlardan tashqari tub aholi tillarini jonlantirish, madaniy an'analarni mustahkamlash va madaniy chidamlilikni shakllantirishni o'z ichiga oladi. Aksincha, ijtimoiy adolat keng qamrovli imtiyozlar va himoyalarni ta'minlaydi (Simpson, 2017). Nihoyat, ular epistemologik jihatdan farq qiladi. Dekolonizatsiya nog'arbiy tub aholining qarashlariga mos ravishda bilim tizimlarini qayta ko'rib chiqish zarurligini ko'rsatadi (Mignolo va Walsh, 2018), ijtimoiy adolat esa turli bilim tizimlarini qamrab, aynan mustamlakachilar o'rnatgan bilim tizimlarini ag'darishga intilmaydi (Fraser, 2009).

Dekolonizatsiya va ijtimoiy adolat o'rtasidagi farqlar amalda bir-biriga muammo tug'dirishi mumkin. Dekolonizatsiya o'zi ijtimoiy adolatsizlik manbasi bo'lishi mumkinligiga ishonib, Lee (2023:187) shunday deydi:

"... Dekolonial ta'limotga amaliyotdan uzilgan nazariyalar, tarixiy tanlovchanlik va Global Janubni ochiqchasiga ideallashtirish juda xos. Xususan, dekolonial harakatlarning millatchilikka yoki qavm-urug'chilikka qarab ketishi epistemik adolat tushunchasini o'ta bahs-munozarali qiladi. Tub aholining shunday bilim namunalari borki, ular irq, jins va din asosidagi tengsizliklarni mustahkamlaydi. Dekolonizatsiya yo'lini tanlagan gibrid o'zlik (irq, madaniyat va millat) egalari ko'payishi bilan o'zlik haqida qoliplashgan tasavvurdan xalos bo'lish nihoyatda muhim."

Bundan tashqari, dekolonizatsiya va ijtimoiy adolat bir-biriga zid bo'lgan aniq vaziyatlarni tushunish uchun ba'zi dekolonial fikrlarga berilgan tanqidlarni ham hisobga olish lozim. Masalan, dunyoni "G'arb" va "G'arb emas" deb ko'rish (Mignolo, 2003, 2009, 2011) uning murakkabligini aks ettirmaydi, o'zaro bog'langan va gibrid tarixlarni inobatga olmaydi. Bu tarixlar ikkala tomonning xilma-xilligini shakllantirib, kamsitishni battarlashtiradi (Táíwò, 2022). Shu bilan birga dekolonizatsiya maqsadida qonli inqilobga urg'u berish (Fanon, 1963) uning murakkab va noaniq oqibatlarini hisobga olmasdan (Scott, 2004), adolatsizlikni kuchaytiradi (Memmi, 2021). Yana bir tanqid mustamlakachilik natijasida keng tarqalgan Yevropa tillaridan to'liq voz kechilishi bilan bog'liq (wa Thiong'o, 1986). Bu mahalliy tillarning kuchayishi bilan birga qimmatli ma'lumotlardan foydalanishni cheklashi, odamlarning kasbiy o'sishi va farovonligiga salbiy ta'sir ko'rsatishi mumkin (Mbembe, 2015). Til o'rganishda bu jihatlarning barchasi e'tiborga olinishi kerak, shunda til ta'limi dekolonizatsiyaga hissa qo'shadimi yoki o'quvchilarga zarar yetkazadimi, tushunish mumkin. Shu asnoda mazkur masalalar o'zbek kontekstida qanday namoyon bo'lishini ko'rish juda qiziqarli bo'lardi. Ushbu masala keyingi tadqiqotlarimizda o'rganiladi.

## Xulosa

Ushbu maqolada ikkinchi til ta'limi, dekolonizatsiya va his-tuyg'ular bo'yicha asosiy global tendensiyalar umumlashtirildi. Bundan tashqari, til dekolonizatsiyasida sohalararo integratsiya ahamiyati ko'rsatilib, ba'zi muhim bo'shliqlar aniqlangan. Shuningdek, dekolonizatsiya va ijtimoiy adolat bir-biriga taqqoslanib, yagona maqsadda va qarama-qarshilikda ishlash holatlari yoritilgan. Mazkur sharhdan asosiy xulosa shundan iboratki, post-kolonial ko'pchilik tilini ikkinchi til sifatida o'rganish, uning dekolonizatsiyasi va tegishli his-tuyg'ular hech qachon birgalikda tadqiq etilmagan. Shu sababli o'zbek kontekstida ham shunga o'xshash tadqiqot olib borish maqsadga muvofiqdir.

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# BIOLOGIYA O‘QITISH JARAYONIDA EKOLOGIK-INTEGRATIV YONDASHUVLAR

**Annotatsiya:** Ushbu maqola biologiya o‘qitish jarayonida ekologik-integrativ yondashuvlarni o‘rganishga bag’ishlangan. Tadqiqotning asosiy maqsadi — xalqaro tajribadagi ekologik-integrativ modellarni tahlil qilish va O‘zbekiston ta’lim tizimida biologiya o‘qitish jarayoniga ushbu yondashuvlarni joriy etish imkoniyatlarini aniqlashdir.

Tadqiqot muammosi shundan iborat: O‘zbekiston umumta’lim maktablarining 7–11-sinf biologiya dasturlarida fanlararo ekologik integratsiya tizimli tarzda amalga oshirilmaydi. Bu esa o‘quvchilarda ekologik ta’lim-tarbiya samaradorligiga salbiy ta’sir qiladi.

Tadqiqotda qiyosiy-tarixiy tahlil va tizimli tahlil metodlaridan foydalanildi. Manba sifatida xalqaro ilmiy maqolalar, Kembrij va Singapur, Finlyandiya va Germaniya milliy ta'lim dasturlari, GreenComp (Bianchi va boshq., 2022) doirasi hamda O‘zbekistonning amaldagi normativ hujjatlari tahlil qilindi.

Tahlil natijalari shuni ko‘rsatdiki: birinchidan, Kembrij va Singapurda fanlararo ekologik integratsiya milliy dastur darajasida mustahkamlangan va bu tizimli natija bermoqda; ikkinchidan, O‘zbekistonda 1–4-sinflarda joriy etilgan "Tabiiy fanlar" dasturi ijobiy qadam bo‘lsa-da, bu yondashuv 7–11-sinflarda davom ettirilmagan; uchinchidan, GreenComp doirasidagi ekologik kompetentliklar O‘zbekiston biologiya dasturida hali to‘liq aks etmagan.

Tadqiqot xulosasi sifatida 7–11-sinf biologiya dasturlariga fanlararo ekologik modul kiritish, GreenComp kompetentliklarini ta’lim maqsadi sifatida rasmiy dasturga qo‘shish va o‘qituvchilarni qayta tayyorlash tizimiga fanlararo o‘qitish modulini kiritish tavsiya etiladi. Ushbu xulosalar O‘zbekiston ekologik ta'lim siyosatini xalqaro standartlarga moslashtirishga amaliy hissa qo‘shadi.

**Kalit so‘zlar:** ekologik ta’lim, fanlararo integratsiya, biologiya o‘qitish, o‘quv dasturlari, ekologik ta’lim-tarbiya barqaror rivojlanish, ekologik-integrativ yondashuv, GreenComp.

## KIRISH

*1.1. Mavzuning dolzarbligi.* Insoniyat faoliyati natijasida yuzaga kelayotgan global ekologik muammolar — iqlim o‘zgarishi, biologik xilma-xillikning kamayishi, tabiiy resurslarning haddan tashqari sarflanishi va ekologik muammolarning inson salomatligiga salbiy ta’sirining ortib borishi ta’lim tizimida ekologik yo‘nalishni tubdan qayta ko‘rib chiqishni taqozo etmoqda. Bu esa o‘z navbatida ta’lim jarayonida ekologik savodxonlik qo‘shimcha yo‘nalish emas, balki har bir o‘quvchida shakllantirilishi lozim bo‘lgan asosiy hayotiy kompetensiya sifatida tan olinishiga olib kelmoqda. (UNESCO, 2021). Biologiya o‘qitish jarayoni esa o‘z tabiati jihatidan ekologik tafakkurni rivojlantirish uchun eng qulay muhit hisoblanib, unda ekologik bilimlar bilan ekologik tarbiya uyg’un ravishda olib borish zarurligini anglatmoqda.

*1.2. Tadqiqot muammosi.* BMTning Barqaror Rivojlanish Maqsadlari (4-maqsad va 13-maqsad) ekologik kompetentlikni milliy ta’lim tizimlarining strategik yo‘nalishi sifatida belgilab qo‘ygan (BMT, 2015). Yevropa GreenComp modeli esa ushbu kompetentlikni tizimli tafakkur, istiqbolni bashorat qilish va axloqiy qadriyatlar sintezi asosida talqin etadi (Bianchi va boshq., 2022). Biroq O‘zbekistonda biologiya o‘qitish jarayoni

hali ham asosan bilim berishga yo‘naltirilgan an’anaviy ko‘rinishda amalga oshirilmoqda: fanlararo bog’liqlik, qadriyatlar tarbiyasi va amaliy ekologik faoliyat ikkinchi o‘rinda qolmoqda. Xalqaro ilg’or amaliyot bilan mahalliy ta’lim o‘rtasidagi ushbu metodologik tafovut tadqiqotning asosiy muammosini belgilaydi.

*1.3. Tadqiqot maqsadi va vazifalari.* Tadqiqotning asosiy maqsadi — biologiya ta’limida ekologik-integrativ yondashuvlarning xalqaro tajribasini O‘zbekiston amaliyoti bilan qiyosiy tahlil qilish va ekologik ta’lim-tarbiyani rivojlantirishning metodologik asoslarini aniqlash. Ushbu maqsadga erishish uchun quyidagi vazifalar belgilandi:

— xalqaro biologiya ta’limida qo‘llanilayotgan ekologik-integrativ yondashuvlarni tizimlashtirib o‘rganish;

— O‘zbekiston umumta’lim maktablarida biologiya o‘qitish amaliyotini tahlil qilish;

— xalqaro va O’zbekiston biologiya ta’limi o‘rtasidagi metodologik farqlarni qiyosiy baholash;

— o‘quvchilarda ekologik ta’lim-tarbiyani rivojlantirishga xizmat qiluvchi pedagogik tavsiyalar ishlab chiqish.

*1.4. Adabiyotlar sharhi.* Ekologik ta’lim nazariyasining poydevori XX asrning oxirida yaratildi. Orr (1992) o‘zining “Ecological Literacy” kitobida ekologik savodxonlikni zamonaviy ta’limning muhim tarkibiy qismi sifatida taklif etdi va ta’limiy inqirozning ildizi tabiatdan uzilib qolishda ekanligini ko‘rsatdi. Tilbury (1995) esa, “Environmental Education Research” jurnalida barqaror rivojlanish uchun ta’limni alohida pedagogik yo‘nalish sifatida asoslab berdi — bu maqola bugungi kunda ham ilmiy ishlarda ko‘p iqtibos keltiriladi. Sterling (2001) “Sustainable Education” asarida ta’limni shunchaki bilim berish emas, balki insonni tabiat bilan yangi munosabatga olib kiradigan o‘zgartiruvchi jarayon sifatida talqin etadi.

Kompetensiyaviy yondashuv nuqtai nazaridan Yevropa Ittifoqi tomonidan tayyorlangan GreenComp doirasi (Bianchi va boshq., 2022) hozirgi kunda ekologik ta’lim sohasidagi eng muhim me’yoriy hujjatlardan biri sifatida tan olinmoqda. Mazkur hujjatda ekologik kompetentlik to‘rtta o‘zaro chambarchas bog’liq soha orqali tavsiflanadi: barqarorlik qadriyatlarini idrok etish, barqaror kelajak sari tasavvurni rivojlantirish, o‘zgarishlarni qabul qilishga tayyorlik hamda amaliy harakat ko‘nikmalarini egallash. Ushbu konseptual doira Yevropa mamlakatlarining ko‘pchiligida ta’lim mazmuniga bosqichma-bosqich singdirib borilmoqda va milliy ta’lim dasturlarini yangilashda asosiy mezon vazifasini o‘tamoqda.

O‘zbekistonda ham bu sohada ilk qadamlar qo‘yilmoqda. O‘zbekiston Respublikasining “Ta’lim to‘g’risida”gi Qonuni (2020) ta’lim jarayonida fanlar uzviyligini va ekologik bilimlarni shakllantirishni ustuvor vazifa sifatida belgilaydi. Tadqiqotlar shuni ko‘rsatadiki, biologiya, geografiya va kimyo fanlarini birgalikda o‘qitish



o‘quvchilarning ekologik muammolarni chuqurroq tushunishiga yordam bermoqda (Niyozov va boshq., 2024). Shuningdek, 11-sinf biologiya darsligida fanlararo yondashuv asosida olib borilgan tadqiqot — Toshkentdagi to‘rtta maktabda 120 nafar o‘quvchi ishtirokida — integratsiya samarali natija berishini ko‘rsatdi (Rahimova M.e-conferences.org, 2024–2025).

Shunday bo‘lsa-da, O‘zbekiston biologiya ta’limini xalqaro ekologik-integrativ yondashuvlar bilan qiyosiy o‘rganuvchi maxsus tadqiqotlar hali kam. Bu esa mazkur maqolaning dolzarbligini belgilaydi.

## METODOLOGIYASI

Tadqiqotda uchta asosiy usuldan foydalanildi. Birinchisi — qiyosiy-tarixiy tahlil: turli davrlardagi ekologik ta’lim modellarining qanday shakllanib borishi kuzatildi. Ikkinchisi — tizimli tahlil: ta’lim standartlari va o‘quv dasturlari bir butun tizim sifatida ko‘rib chiqildi. Uchinchisi — paradigmal tahlil: ta’limdagi nazariy yondashuvlar o‘rtasidagi farqlar aniqlandi.

Birlamchi ma’lumotlar xalqaro ilmiy maqolalar, milliy ta’lim standartlari va amaliy o‘quv dasturlari asosida to‘plandi. O‘zbekiston amaliyotini baholash uchun amaldagi biologiya o‘quv dasturlari hamda “Ta’lim to‘g’risida”gi Qonun (2020) kabi normativ hujjatlar tahlil qilindi.

Xalqaro tajribani o’rganishda beshta mamlakat tizimi tayanch sifatida olindi. Lindemann-Matthies va boshqalar (2009) tomonidan o’tkazilgan qiyosiy

tadqiqot Finlyandiya, Germaniya va Shveytsariya maktablarida biologiya o'qituvchilarini tayyorlash jarayonida fanlararo integratsiyaning qanday tatbiq etilayotganini ko'rsatib berdi. Chexiya maktablarida Cincera va Krajhanzl (2013) Eco-Schools dasturini baholab, o'quvchilarning amaliy ekologik kompetentligini shakllantirishda qaror qabul qilish jarayoniga jalb etilishning hal qiluvchi ahamiyatini asoslab berdi. Ushbu topilma metodologiyamiz uchun muhim tayanch bo'ldi: o'quvchiga faqat bilim uzatish emas, balki uni haqiqiy ekologik jarayonning ishtirokchisiga aylantirish zarurligini ko'rsatdi.

Kembrij va Singapur tajribasi ham alohida e'tiborga loyiq, chunki O'zbekiston aynan shu mamlakatlarning o'quv dasturlarini mahalliylashtirish yo'lini tutmoqda. Kembrij dasturlari (Cambridge International) biologiya o'qitishda ilmiy-tadqiqot ko'nikmalarini va tanqidiy fikrlashni markazga qo'yadi hamda ekologik mavzularni amaliy loyihalar orqali o'zlashtirishga yo'naltiradi. Singapur esa "kam o'qit, ko'p o'rgan" (Teach Less, Learn More) tamoyili asosida o'quvchida mustaqil ekologik fikrlash malakasini shakllantirishga ustuvorlik beradi. Ikki tizim ham nazariy bilimni amaliy faoliyat bilan uyg'unlashtirish orqali ekologik kompetentlikni rivojlantiradi va O'zbekiston uchun samarali metodologik namuna bo'lib xizmat qilishi mumkin.

Ushbu besh manbaning tanlanishi o'ziga xos mantiqqa ega. Finlyandiya va Germaniyada fanlararo integratsiya rasmiy o'quv dasturlariga singdirilgan, Chexiyada maktabdan tashqari ekologik dasturlar ustuvor rol o'ynaydi, Kembrij amaliy loyihalar va tanqidiy fikrlashga, Singapur esa o'quvchi mustaqilligiga tayanadi. Bu turli yondashuvlarni qiyoslash O'zbekiston uchun nazariy va amaliy xulosalar chiqarish imkonini berdi.

*2.1. Tadqiqot yondashuvi.* Ushbu tadqiqot *qualitative* yondashuv asosida qurilgan. Xususan, qiyosiy hujjatli tahlil *(comparative documentary analysis)* usuli qo'llanildi. Bu yondashuv ta'lim siyosati va o'quv dasturlarini o'rganuvchi nazariy ishlarda keng tan olingan: u bir necha mamlakat yoki tizimning rasmiy hujjatlarini tizimli ravishda solishtirish va umumiy xulosalar chiqarish imkonini beradi (Chiu et al., 2022). Tadqiqot miqdoriy ma'lumot to'plashni nazarda tutmaydi — uning maqsadi mavjud ta'lim tizimlari va standartlardagi yondashuvlarni tahlil qilish va O'zbekiston biologiya ta'limi uchun xulosalar ishlab chiqishdir.

*2.2. Ma'lumotlar yig'ish usullari va manbalari.* Ma'lumotlar ikkilamchi manbalar orqali yig'ildi. Birlamchi ma'lumot to'plash (so'rovnoma, intervyu, eksperiment) nazariy tadqiqotning xarakteridan kelib chiqib o'tkazilmadi. Foydalanilgan manba turlari: Xalqaro rasmiy hujjatlar: GreenComp — Yevropa barqarorlik kompetentlik doirasi (Bianchi et al., 2022); Kembrij, Singapur, Finlyandiya va Germaniya milliy o'quv dasturlari; O'zbekiston normativ hujjatlari: O'zbekiston Respublikasining "Ta'lim to'g'risida"gi Qonuni (2020); biologiya fanidan amaldagi umumta'lim o'quv dasturlari; Ilmiy adabiyotlar: 2021–2025-yillarda *Sustainability*, *Environmental Education Research* va *Journal of Cleaner Production* jurnallarida nashr etilgan maqolalar.

*2.3. Tadqiqot jarayoni.* Tadqiqot uch ketma-ket bosqichda amalga oshirildi.

*Birinchi bosqich — manba tanlash va ro'yxatga olish (2024-yil, 1-oy).* Adabiyotlar bazasida kalit so'zlar yordamida qidiruv o'tkazildi: "interdisciplinary ecology education", "biology curriculum integration", "sustainability competence school", "fanlararo biologiya ta'limi". Topilgan manbalar 5 yillik va mavzuviy mezon asosida saralab olindi.

*Ikkinchi bosqich — qiyosiy tahlil (2024-yil, 2–3-oy).* Tanlangan mamlakatlar ta'lim tizimlari uchta mezon bo'yicha solishtirildi: (1) fanlararo integratsiyaning rasmiy dasturga kiritilganligi; (2) ekologik kompetentlikni baholash usullari; (3) o'qituvchilarni tayyorlash tizimi. O'zbekiston amaldagi biologiya dasturlari ham xuddi shu mezonlar asosida tahlil qilindi.

*Uchinchi bosqich — xulosalar va tavsiyalar (2024-yil, 4-oy).* Tahlil natijalaridan kelib chiqib, O'zbekiston biologiya ta'limida fanlararo ekologik integratsiyani kuchaytirish bo'yicha amaliy takliflar shakllantirildi.

*2.4. Ma'lumotlar tahlili usullari.* Yig'ilgan hujjatlar ikki usul orqali tahlil qilindi.

*Kontent tahlili (content analysis):* har bir hujjatda ekologik integratsiyaga oid qoidalar, atamalar va standartlar aniqlandi va kodlash jadvaliga kiritildi.

*Tematik tahlil (thematic analysis):* barcha manbalar bo'yicha uchta asosiy mavzu ajratildi: ekologik kompetentlik tushunchasi, fanlararo integratsiya modellari va ta'lim natijalari. Bu yondashuv nazariy hujjatli tadqiqotlarda keng tan olingan (Bowen, 2009).

Tahlil dasturiy ta'minot ishlatilmay — an'anaviy qo'lda kodlash orqali amalga oshirildi, chunki manbalar soni cheklangan va chuqur talqin talab etadi.

*2.5. Cheklovlar.* Ushbu tadqiqotda uchta asosiy cheklov mavjud. *Birinchidan*, empirik ma'lumotlar to'planmagan — sinfxona kuzatuvi yoki o'qituvchilar so'rovnomasi o'tkazilmagan, bu esa O'zbekistondagi real amaliyotni to'liq aks ettirmasligi mumkin. Ikkinchidan, xalqaro qiyoslash Finlyandiya, Germaniya, Chexiya, Kembrij va Singapur tizimlari bilan chegaralangan; Janubiy Koreya yoki Xitoy kabi boshqa yirik ta'lim tizimlari qamrab olinmagan, bu esa xulosalarning geografik umumlashtirilish imkoniyatini toraytiradi. Uchinchidan, O'zbekiston ichidagi hududiy farqlar — xususan, shahar va qishloq maktablari o'rtasidagi tafovut — tadqiqot doirasidan tashqarida qolgan. Mazkur cheklovlar tadqiqot natijalarini inkor etmaydi, balki kelajakdagi empirik ishlar uchun aniq yo'nalish belgilaydi.

## TAHLILLAR



*3.1. Natijalarni sharhlash.* Qiyosiy tahlil fanlararo integratsiyaning biologiya ta'limida ekologik ta'lim-tarbiyani rivojlantirishning eng samarali yo'llaridan biri ekanligini tasdiqladi. Finlyandiyada biologiya, geografiya va kimyo darslari yagona ekologik mavzular atrofida uyg'unlashtiriladi; o'quvchilar sinf ichida ham, tabiat sharoitida ham kuzatuvlar olib borib, ekologik bilimlarini amaliyot orqali mustahkamlaydi. Germaniyada ekologiya alohida modul sifatida tashkil etilgan bo'lib, biologiya, fizika va kimyo fanlari ushbu modulni mazmunan boyituvchi manba vazifasini bajaradi. Chexiya modelida maktabdan tashqari Eco-Schools dasturi markaziy o'rinni egallaydi: o'quvchilar o'z maktablarida energiya va suv sarfini kuzatib, real ekologik muammolarni hal etishga yo'naltiriladi.

Kembrij dasturlarida ekologik mavzular mustaqil tadqiqot ishlari va amaliy loyihalar orqali o'zlashtiriladi; o'quvchi bilimni tayyor holda qabul qiluvchi emas, balki uni o'zi tadqiqotchi sifatida faoliyat yuritadi. Singapur modelida o'quvchining mustaqil ekologik fikrlash qobiliyatini rivojlantirish ustuvor vazifa hisoblanadi; bu tizimda chuqur tushunish ko'p miqdordagi ma'lumotdan yuqori qo'yiladi.

O'zbekiston amaldagi biologiya o'quv dasturlarini ushbu modellar bilan taqqoslaganda bir muhim farq ko'zga tashlanadi. O'zbekistonda 2021–2022 o'quv yilidan boshlab boshlang'ich sinflarda "Tabiiy fanlar" (SCIENCE) integratsiyalashgan dasturi joriy etildi — bu ijobiy qadam. Biroq 7–11-sinf biologiya dasturlarida fanlararo integratsiya tizimli tarzda emas, balki yakka darslar misolida uchraydi. Toshkentdagi maktablarda 11-sinf biologiyasi bo'yicha o'tkazilgan tadqiqot ham shuni tasdiqladi: fanlararo yondashuv qo'llanilgan o'quvchilar ekologik bilimlarni chuqurroq o'zlashtirgani va amaliy ko'nikmalarini yaxshiroq rivojlantirgani aniqlandi (e-conferences.org, 2024–2025).

*3.2. Natijalarning ahamiyati.* Ushbu tahlilning ilmiy ahamiyati shundaki, u O'zbekiston biologiya ta'limining xalqaro ekologik-integrativ modellar bilan qiyosiy manzarasini birinchi marta tizimli shaklda taqdim etmoqda. Amaliy ahamiyati esa yanada kattaroq. Natijalar ko'rsatadiki, faqat biologiya darsida ekologiya mavzularini o'rgatish yetarli emas — geografiya, kimyo va fizika o'qituvchilari bilan hamkorlikda tuzilgan birgalikdagi darslar, loyiha ishlari va monitoring mashg'ulotlari o'quvchida ekologik ta'lim-tarbiyani haqiqiy ma'noda shakllantiradi.

Bundan tashqari, GreenComp (Bianchi et al., 2022) doirasida belgilangan to'rtta kompetentlik sohasi — qadriyatlarni anglash, murakkablikni qabul qilish, barqaror kelajakni tasavvur etish va amalda harakat qilish — O'zbekiston o'quv dasturlarida ham maqsad sifatida ko'zda tutilishi mumkin. Bu xalqaro ta'lim standartlariga integratsiyalashuvning ham amaliy yo'li bo'lib xizmat qiladi.

*3.3. Topilmalarni solishtirish.* Ushbu tadqiqot natijalari bir qator xalqaro ilmiy ishlar bilan mos keladi. Chiu va boshqalar (2022) ham hujjatli qiyosiy tahlil orqali fanlararo ekologik ta'limning samaradorligi milliy o'quv dasturiga tizimli kiritilgandagina namoyon bo'lishini ko'rsatgan. Niyozov va boshqalar (2024) esa O'zbekiston kontekstida xuddi shu xulosaga kelgan: biologiya darslarida fanlararo yondashuv o'quvchilarda muammolarni hal qilish ko'nikmalarini va ekologik tafakkurni rivojlantirishda sezilarli ijobiy ta'sir ko'rsatgan. Farq shundaki, Yevropa mamlakatlarida integratsiya yuqoridan — milliy dastur va standartlar orqali — amalga oshiriladi. O'zbekistonda esa hozircha bu ko'proq individual o'qituvchining tashabbusiga bog'liq. Bu farq natijalarning barqarorligiga ham ta'sir qiladi: tashabbuskor o'qituvchi o'z maktabida yaxshi natijaga erisha oladi, lekin bu tajriba tizimli tarqalmaydi.

*3.4. Cheklovlar.* Ushbu tahlil bir qator cheklovlarni hisobga olishi lozim. Birinchidan, O'zbekiston bo'yicha hujjatli manbalar cheklangan — sinfxona kuzatuvi yoki keng ko'lamli so'rovnoma o'tkazilmagan. Shuning uchun xulosalar to'liq empirik asosga ega emas. Ikkinchidan, taqqoslash uchun tanlangan mamlakatlarining tajribasidan tashqari Qozog'iston yoki Qirg'iziston tajribasi ham e'tiborga olinmagan. Uchinchidan, O'zbekiston maktablarining shahar va qishloq o'rtasidagi farqlari tahlilga kiritilmagan — bu esa amaliy tavsiyalarni qo'llash doirasini toraytirishi mumkin.

*3.5. Amaliy tavsiyalar.* Tahlil asosida quyidagi amaliy tavsiyalar ishlab chiqildi. *Birinchi tavsiya:* 7–11-sinf biologiya dasturlariga fanlararo ekologik modul kiritilishi lozim. Bu modulda biologiya o'qituvchisi geografiya, kimyo va fizika o'qituvchilari bilan hamkorlikda kamida oyiga bir marta birgalikdagi dars o'tkazishi nazarda tutilsa, tizimlilik ta'minlanadi. *Ikkinchi*

*tavsiya:* GreenComp (Bianchi et al., 2022) doirasidagi to‘rtta kompetentlik sohasi O‘zbekiston biologiya ta’limining maqsadlari sifatida rasmiy dasturga kiritilishi maqsadga muvofiq. Bu xalqaro standartlar bilan muvofiqlashuvni ham ta’minlaydi. *Uchinchi tavsiya:* Chexiya Eco-Schools modeliga o‘xshash maktabdan tashqari ekologik monitoring dasturlari joriy etilishi kerak. O‘quvchilar o‘z maktabi yoki mahallasidagi havo, suv yoki tuproq holatini kuzatib, ma’lumot to‘plasa — bu nazariy bilimni amaliyot bilan bog’laydi. *To‘rtinchi tavsiya:* O‘qituvchilar malakasini oshirish tizimida fanlararo ekologik ta’lim alohida modul sifatida kiritilishi lozim. Hozircha biologiya o‘qituvchilari bu sohada maxsus tayyorgarlik olmaydi.

*3.6. Kelgusidagi tadqiqotlar uchun takliflar.* Ushbu tadqiqot bir nechta yangi yo‘nalish uchun asos bo‘lishi mumkin. Birinchi yo‘nalish — empirik tadqiqot: O‘zbekistonning turli hududlaridagi maktablarda (shahar, qishloq, kam ta’minlangan tumanlar) fanlararo ekologik darslar o‘tkazib, natijalarni kuzatish. Ikkinchi yo‘nalish — qiyosiy tadqiqotni kengaytirish: Qozog’iston, Qirg’iziston va Tojikiston tajribasini ham tahlilga qo‘shib, Markaziy Osiyo mintaqasidagi umumiy manzarani aniqlash. Uchinchi yo‘nalish — o‘qituvchilar bilan sifatli tadqiqot: biologiya o‘qituvchilarining fanlararo integratsiyaga munosabati, to‘siqlari va ehtiyojlari haqida chuqur intervyular o‘tkazish. Bu uchta yo‘nalish birgalikda O‘zbekiston ekologik ta’lim siyosatini ilmiy asosda shakllantirishga xizmat qiladi.

## NATIJALAR

*4.1. Asosiy topilmalar.* Ushbu tadqiqot uchta asosiy topilmalar aniqlandi. *Birinchi topilma:* O‘zbekiston biologiya ta’limida ekologik-integrativ yondashuv tizimli emas, balki yakka tartibda qo‘llanilmoqda. Amaldagi 7–11-sinf o‘quv dasturlarini tahlil qilish shuni ko‘rsatdiki, ekologiya mavzulari biologiya fanida alohida bo‘limlar sifatida mavjud, ammo geografiya, kimyo yoki fizika fanlari bilan rasmiy hamkorlik mexanizmi belgilanmagan. Bu holat Kembrij, Singapur, Finlyandiya va Germaniya modellaridan tubdan farq qiladi — u mamlakatlarda fanlararo integratsiya milliy dastur darajasida mustahkamlangan. *Ikkinchi topilma:* Boshlang’ich ta’limda (1–4-sinf) joriy etilgan “Tabiiy fanlar” (SCIENCE) integratsiyalashgan dasturi ijobiy qadam bo‘lib, biologiya, geografiya va fizika asoslarini bir yaxlit kursda birlashtiradi. Biroq o‘rta va yuqori sinflarda bu yondashuv davom ettirilmaydi — ya’ni integratsiya faqat boshlang’ich bosqich bilan chegaralanib qolgan. *Uchinchi topilma:* GreenComp (Bianchi et al., 2022) doirasida belgilangan to‘rtta ekologik kompetentlik sohasi O‘zbekiston biologiya dasturining mavjud maqsadlari bilan qisman mos keladi, biroq “murakkablikni qabul qilish” va “amalda harakat qilish” sohalari hozirgi dasturlarda deyarli aks etmagan.

*4.2. Raqamli dalillar.* Xalqaro tadqiqotlar integratsiyalashgan o‘qitishning samaradorligini raqamlarda ham tasdiqlaydi. Kreijkes & Greatorex (2024) tomonidan o‘tkazilgan keng ko‘lamli sharhlar tahlili (1990–2022-yillar oralig’idagi 9 ta meta-tahlilni qamrab olgan) ko‘rsatdiki, integratsiyalashgan o‘quv dasturlari o‘quvchilarning fan bilimlarini o‘zlashtirish darajasini an’anaviy alohida fanlar yondashuvi bilan solishtirganda deyarli teng darajada ta’minlaydi. O‘zbekiston kontekstida esa 11-sinf biologiyasi bo‘yicha o‘tkazilgan tadqiqot (e-conferences.org, 2024–2025) — Toshkentdagi 4 ta maktabda 120 nafar o‘quvchi ishtirokida — fanlararo yondashuv qo‘llanilgan guruhlarda ekologik bilimlar darajasi an’anaviy dars o‘tkazilgan guruhga nisbatan yuqori bo‘lganini qayd etdi.

*4.3. Tadqiqot savollari bo‘yicha natijalar.* Tadqiqotda qo‘yilgan birinchi savol- ,Xalqaro ekologik--integrativ modellar qanday tarkibga ega? Birinchi savolga javob: tahlil qilingan mamlakatlar modelida umumiylik mavjud. Ular rasmiy dastur darajasida integratsiya mustahkamlanganligi, o‘qituvchilar hamkorligiga institutsional shart-sharoit yaratilganligi va o‘quvchining passiv tinglovchidan faol ekologik muammo hal qiluvchiga aylantirilishi. GreenComp hujjatlarida (Bianchi et al., 2022) bular barqaror talimining universal mezonlari sifatida tan olingan.

Ikkinchi savol O‘zbekiston biologiya ta’limi bu modellardan qay darajada foydalanmoqda? - deb qo’yilgan va unga javob: O‘zbekiston hozirgi bosqichda ushbu uch unsurning faqat birinchisini — ya’ni boshlang’ich sinflarda rasmiy integratsiyani — qisman amalga oshirgan. O‘qituvchilar hamkorligiga shart-sharoit hali tizimli tarzda yaratilmagan, o‘quvchining faol ekologik muammo hal qiluvchi sifatida shakllantirilishi esa o‘quv dasturiga rasman kiritilmagan.

*3.4. Qiyosiy jadval.* Quyida beshta mamlakat va O‘zbekiston biologiya ta’limidagi ekologik-integrativ yondashuvning asosiy ko‘rsatkichlari keltirilgan.

*1-jadval. Ekologik-integrativ yondashuvning mamlakatlaro taqqosiy tahlili. (Muallif tomonidan bajarilgan)*

| Ko‘rsatkich | Kembrij | Singapur | Finlyandiya | Germaniya | Chexiya | O‘zbekiston |
|---|---|---|---|---|---|---|
| **Rasmiy dasturda integratsiya** | Ha | Ha | Ha | Ha | Qisman | Faqat 1–4-sinf |
| **O‘qituvchilar hamkorligi tizimi** | Ha | Ha | Ha | Ha | Qisman | Yo‘q |
| **Maktabdan tashqari ekologik dastur** | Qisman | Qisman | Qisman | Qisman | Ha (Eco-Schools | Yo‘q |
| **GreenComp kompetentliklari bilan muvofiqlik** | Yuqori | Yuqori | Yuqori | Yuqori | O‘rta | Past |
| **O‘quvchi faol muammo hal qiluvchi sifatida** | Ha | Ha | Ha | Ha | Ha | Qisman |

*3.5. Kutilmagan natijalar.* Tadqiqot jarayonida bir kutilmagan topilma aniqlandi. O‘zbekistonda 2021–2022 o‘quv yilidan boshlang’ich sinflarda joriy etilgan “Tabiiy fanlar” dasturi ilmiy adabiyotlarda deyarli o‘rganilmagan — bu sohadagi mahalliy tadqiqotlar soni juda kam. Bu holat bir tomondan kamchilik, ikkinchi tomondan esa imkoniyat: mazkur dasturning samaradorligini o‘rganuvchi empirik tadqiqotlar uchun keng maydon mavjud. Bundan tashqari, O‘zbekiston o‘qituvchilari fanlararo hamkorlikka qiziqish bildirayotgani, biroq bunga yo‘l ko‘rsatuvchi metodik qo‘llanmalar yetishmasligi ham aniqlandi. Bu esa amaliy tavsiyalar uchun muhim asos bo‘ldi.

## XULOSA

Ushbu tadqiqot biologiya o‘qitish jarayonida ekologik ta’lim-tarbiyani rivojlantirishda ekologik-integrativ yondashuvlarning xalqaro tajribasi va O‘zbekiston amaliyotini qiyosiy o‘rganishga bag’ishlandi. Natijalar aniq bir manzarani ko‘rsatdi: fanlararo integratsiya ekologik ta’lim-tarbiyani rivojlantirishning eng samarali yo‘li, lekin bu yo‘l O‘zbekistonda hali to‘liq o‘zlashtirilmagan.

Kembrij, Singapur, Finlyandiya va Germaniyada ekologik integratsiya milliy dastur darajasida mustahkamlangan va bu tizimli natija bermoqda. O‘zbekistonda 1–4-sinflarda “Tabiiy fanlar” dasturi ijobiy qadam bo‘ldi, biroq 7–11-sinflarda bu yondashuv xozircha to‘liq yakunlanmagan. GreenComp (Bianchi et al., 2022) doirasidagi ekologik kompetentliklar O‘zbekiston dasturida hali to‘liq aks etmagan.

Tadqiqot maqsadiga erishildi. Xalqaro modellar tahlil qilindi, O‘zbekiston amaliyotidagi bo‘shliqlar aniqlandi va ularni to‘ldirish yo‘llari taklif etildi.

Muammoning yechimi bitta gapda: 7–11-sinf biologiya dasturlariga fanlararo ekologik modulni rasman kiritish va o‘qituvchilar hamkorligini institutsional darajada ta’minlash.

Amaliy tavsiyalar to‘rtta: biologiya dasturida fanlararo ekologik modul joriy etilsin; GreenComp kompetentliklari ta’lim maqsadi sifatida qabul qilinsin; Chexiya Eco-Schools tajribasiga o‘xshash maktab ekologik monitoring dasturlari tashkil etilsin; o‘qituvchilarni qayta tayyorlash tizimiga fanlararo o‘qitish moduli qo‘shilsin.

Cheklov bir — empirik ma’lumot yetishmaydi. Xulosalar hujjatli tahlilga asoslangan. Sinfxona kuzatuvi yoki so‘rovnoma o‘tkazilmagan. Bu natijalarning amaliy tasdig’ini kelgusidagi tadqiqotlar berishi kerak.

Kelgusidagi tadqiqotlar uchun eng muhim yo‘nalish — O‘zbekistonning turli hududlaridagi maktablarda fanlararo ekologik darslarni sinab ko‘rish va natijalarni o‘lchash. Shuningdek, Markaziy Osiyo mamlakatlari — Qozog’iston, Qirg’iziston — tajribasi bilan qiyosiy tadqiqot o‘tkazish ham muhim ilmiy qiymatga ega bo‘ladi.

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# EMBEDDING EXTERNAL QUALITY ASSURANCE IN CREDIT-MODULAR SYSTEMS: HOW MALAYSIA'S QUALIFICATIONS ARCHITECTURE BRIDGES THE POLICY-PRACTICE GAP FOR UZBEKISTAN

**Abstract.** The credit-modular system is now the standard structure of higher education in Uzbekistan, but its value depends on external quality assurance (EQA): the standards, accreditation, and recognition that turn a credit into a unit of trust. This article argues that EQA works as a transmission mechanism that should carry quality from the system level down to module-level practice, and that this mechanism characteristically fails at the outcome level, producing a policy–practice gap. Using a qualitative comparative document analysis, the study examines Malaysia as a middle-income case in which the mechanism transmits, and compares it with Uzbekistan, where the external machinery has only recently been built. The findings show that Malaysia's strength lies not in its agency alone but in a single connective instrument, the Malaysian Qualifications Framework, which ties credits to learning outcomes and embeds them in accreditation. Uzbekistan has established an independent national quality agency and a state accreditation system, but it has not yet built this connective framework, and its indicators remain input-oriented. The article concludes that Uzbekistan should add the connective framework and an enhancement orientation; without them, reform risks isomorphic mimicry, in which EQA looks complete but does not improve learning.

**Keywords:** credit-modular system; external quality assurance; qualifications framework; policy–practice gap; Malaysia; Uzbekistan; higher education reform.

## INTRODUCTION

Uzbekistan has reformed the structure of its higher education system in less than ten years. Three policy documents drove this change: the Concept for the Development of the Higher Education System until 2030, the 2020 resolution that gave the credit-modular system its legal basis, and the 2020 Law on Education. [1], [2], [3] Together, they made the credit-modular system the standard way of organizing study in the country's universities. In terms of formal adoption, the transition is complete.

However, formal adoption is only the easier part of any quality reform. The credit-modular system is mainly a way of designing and measuring study. It divides a program into modules, gives each module a credit value based on student workload, and links that value to defined learning outcomes. [4] What the system cannot do on its own is guarantee quality. It cannot ensure that a credit earned at one university represents the same learning as a credit of the same value earned at another, or that a module really delivers the outcomes it promises. This guarantee does not come from inside the credit-modular structure. It comes from outside it: from standards that an institution does not set for itself, from review that it does not carry out on itself, and from recognition that it cannot give to itself. This is the role of external quality assurance (EQA). It is the condition that turns a credit from a simple number into a unit of trust.

This article argues that EQA works as a transmission mechanism. Its purpose is to carry quality from the level where it is governed — the system, the agency, and the qualifications framework — down to the level where students experience it, which is the module and the assessment. Across twenty years of credit-modular reform, this transmission often fails. Structural and procedural requirements usually travel well, because they are visible and linked to accreditation. However, the outcome-level guarantees that matter most — proven competence, credit transfer, and graduate employment — are often weakly applied in practice. [5], [6], [7] This distance between what policy requires and what institutions actually do is the policy–practice gap. It is the central problem of this article.

For Uzbekistan, this gap is an urgent question, because the external machinery is still new. In September 2025, a presidential decree established the National Agency for the Assurance of Education Quality. For the first time, the country had a central body responsible for coordinating quality assurance, assessment, and accreditation, based on international standards and with formal institutional independence. [8] At the same time, the government introduced institutional and program state accreditation, based on self-assessment, independent external review, and on-site evaluation. Within months,



sixty-two institutions had entered the first accreditation cycle. [9] The external apparatus now exists. Therefore, the main question is no longer whether Uzbekistan has external quality assurance, but whether it will work as real enhancement or become only administrative compliance.

The existing literature raises this question but does not answer it. Most research on quality assurance for modular education comes from high-income, Bologna-aligned systems, where the model began. [10], [11] The main reference documents — the European Standards and Guidelines and the INQAAHE guidelines — were written for systems with mature agencies, autonomous institutions, and an established quality culture. [12], [13] These documents describe what good external quality assurance looks like. They say much less about how a middle-income system, reforming quickly and from a centralized past, can build that assurance so that it reaches the module level. The cases used in the literature do not resemble Uzbekistan. This is the gap the article addresses. The problem is not a lack of standards, but a lack of proven middle-income models for applying them.

Malaysia is chosen as such a model. It is not presented as an example to copy completely, but as a

working case of the transmission mechanism in conditions closer to Uzbekistan's than any European system. Malaysia is a middle-income country, it has internationalized its higher education actively, and it built its external system around one connecting instrument. The Malaysian Qualifications Framework (MQF) defines qualifications through three linked criteria: levels, learning outcomes, and credit. According to the Malaysian Qualifications Agency, the MQF is an integral part of the agency's quality-assurance practice, and learning outcomes are checked when institutions submit programs for accreditation. [14] In this way, framework, credit, outcome, and assurance form one structure rather than four separate policies. This integration is what Uzbekistan's new system has not yet achieved, and the article argues that it is the key factor.

## Conceptual framework

Three commitments turn these ideas into an analytical framework. First, external quality assurance is not treated as another word for accreditation. It is understood as an umbrella term with four connected parts: external standards (framework descriptors, program standards, codes of practice), external machinery (the agency, accreditation, audit, and peer review), external indicators (the measures used to judge achievement), and external pressures (employer demands, professional bodies, and international recognition). Quality assurance "based on external factors" means that all four parts work together.

Second, the analysis uses an implementation lens. Quality is produced where teaching and assessment happen, not where they are governed. The Structure–Process–Outcome model helps to locate the failure. [15] External assurance can secure good structures and correct procedures but still fail at the outcome level, where quality is hardest to measure and most important. The policy–practice gap is therefore a predictable result when one stage of the mechanism does not work.

Third, the analysis explains why the gap continues even after the machinery is built. This explanation comes from the literature on policy borrowing and state capability. Reforming systems often import the forms of more developed systems as signs of modernity and legitimacy. [16], [17] A related danger is premature load-bearing, when a new agency is asked to do too much too soon and becomes weaker instead of stronger. In a middle-income setting, the difference between compliance and enhancement therefore becomes especially important. The risk is not only a "tick-box" culture, but a capability trap, in which external quality assurance looks complete but does not work in practice.

These commitments lead to the main proposition of the article. External quality assurance is the mechanism that should bring quality to module-level practice. It often fails at the outcome level, which produces the policy–practice gap. It fails because external forms are treated as compliance instead of being used for enhancement. Malaysia shows how a middle-income system can connect framework, credit, outcome, and assurance so that the mechanism works. At the same time, its own tensions show that this architecture is necessary but not sufficient. The article therefore addresses three questions:

1. What does external quality assurance include as an integrated mechanism, and how is it supposed to reach module-level practice in credit-modular systems?
2. How does Malaysia's qualifications architecture organize this mechanism, and where are its strengths and limits?
3. What conditional lessons does this offer for Uzbekistan, where the external architecture now exists, but its integration with the credit-modular system and its orientation toward enhancement are still unsettled?

## METHODS

This article uses a qualitative, comparative document analysis. It does not collect new field data. Instead, it examines how external quality assurance is designed and applied in two higher education systems and compares them against a common framework. This approach fits the research questions, because the object of study is policy and institutional design, which is recorded mainly in official documents, laws, and quality-assurance guidelines. The study follows an interpretive logic. It treats educational quality not as a fixed measure but as a concept that each system defines and applies in its own way. The aim is therefore not to rank Malaysia and Uzbekistan, but to understand how each system builds the transmission mechanism described above, and where that mechanism is strong or weak.

Malaysia was selected purposively, as a "most relevant" case rather than a representative one. It is useful here because it shows the transmission mechanism working under conditions similar to Uzbekistan's: it is a middle-income country, it built its external quality-assurance architecture deliberately and recently, and it organized that architecture around a single connecting instrument, the Malaysian Qualifications Framework. These features make Malaysia a clearer test of the argument than any high-income European system. Uzbekistan is the target case, to which the lessons are applied.

The comparison was carried out in three steps. First, each system was mapped against the four components of external quality assurance: standards, machinery, indicators, and pressures. Second, the Structure–Process–Outcome model was used to



locate the point where quality assurance reaches, or fails to reach, module-level practice. [15] Third, the two systems were compared thematically, and the main results are summarized in a comparison table. Two limitations follow from this design. The study analyses intended design, not daily institutional behavior, and that empirical work belongs to a later stage of the research. Official documents may also differ from practice; to reduce this risk, the analysis uses independent studies where available and treats official claims as statements of intention. These limits suit the aim of the article, which is to establish an analytical lens and conditional lessons rather than to evaluate institutions.

## RESULTS

**The policy–practice gap in credit-modular quality assurance**

The international evidence shows a consistent pattern in how credit-modular systems are monitored. Quality requirements that are structural or procedural are usually applied well, while requirements that concern outcomes are applied weakly. Structural requirements, such as credit rules, recognition policies, and the existence of an accreditation process, are visible and easy to check. Process requirements, such as completion rates and assessment procedures, are also recorded routinely. These elements travel well from policy into practice, partly because institutions must show them in order to pass accreditation. [5]

The picture changes at the outcome level. Outcomes such as proven competence, successful credit transfer between institutions, graduate employment, and equal access for different social groups appear clearly in policy documents and international guidelines, but they are measured far less often inside institutions. [6], [7] In other words, systems tend to monitor what is easy to count rather than what policy considers most important. Using the Structure–Process–Outcome model, the gap can be located precisely. [15] It is not mainly at the structural or process stage, but at the outcome stage, where the link between a credit and real, demonstrated learning is supposed to be confirmed.

Several conditions keep this gap open. Information about learners, programs, and the labor market is often held in separate systems that do not connect, so outcomes such as employability or credit transfer cannot be tracked easily. [6] Institutions also work under several overlapping authorities — national agencies, professional bodies, and international partners — and this encourages them to do the minimum needed to satisfy each one, rather than

to build one coherent system. [5] Finally, many institutions lack the analytical capacity to collect and use outcome data, so they rely on simple measures that are cheap to produce. These conditions are not unique to any one region; reviews of quality assurance in Asia and worldwide report the same imbalance between strong procedural compliance and weak outcome measurement. [18] [11] The gap, therefore, is a structural feature of credit-modular quality assurance, not an accident of one system.

**Malaysia's qualifications architecture**

Malaysia addresses this gap through a single connecting instrument rather than through separate measures. The Malaysian Qualifications Framework (MQF) defines every qualification in the country through three linked criteria: the level of the qualification, its learning outcomes, and its credit value. [11] The framework has eight levels, from certificates (Levels 1–3) through diplomas (Levels 4–5) to bachelor's, master's, and doctoral degrees (Levels 6–8). It also defines five clusters of learning outcomes — covering knowledge, skills, and values — that apply across all levels. The MQF was first published in 2007 and enforced from 2011. Its second edition was approved in 2017 and became mandatory in 2020, and it was updated again in 2024. [14]

The important feature is not the framework itself, but how it is connected to quality assurance. The MQF is managed by the Malaysian Qualifications Agency (MQA), the national body established under the MQA Act of 2007. According to the agency, the MQF is an integral part of its quality-assurance practice: program design, learning outcomes, teaching, assessment, and improvement are all embedded in the quality-assurance standards, and learning outcomes are verified and evaluated when institutions submit their programs for accreditation. [14] In this system, a credit is never separated from the outcome it represents, because the same framework defines both, and the agency checks both at the same time.

This connection is put into practice through a set of codes and processes. Program accreditation is governed by the Code of Practice for Program Accreditation, and institutional review by the Code of Practice for Institutional Audit and the Institutional Quality Audit Framework. [19],[20],[21] Accreditation is not a single event but a cycle: a program first receives provisional accreditation, then full accreditation, and is then maintained through periodic audit. Each stage uses self-assessment by the institution, followed by review from an external panel. Accredited programs are listed in the public Malaysian Qualifications Register, which allows students, employers, and foreign institutions to confirm the status and value of a qualification. The register turns recognition into a visible, external fact rather than an internal claim.

Two further features push the mechanism toward the outcome level. First, Malaysia has adopted outcome-based education across its system, so programs must define what graduates can actually do, and assessment must be aligned with those outcomes. [26],[27] To monitor this, the framework supports instruments such as the integrated Cumulative Grade Point Average, which is designed to record the achievement of learning outcomes rather than marks alone. [14] Second, the framework connects to external pressures beyond the agency. Professional bodies such as the Board of Engineers, the Malaysian Medical Council, and the Board of Architects accredit relevant degrees jointly with the MQA, so that academic and professional recognition reinforce each other. [14] The 2024 update also added values-based education and sustainability competencies to the five clusters, and the national internationalization policy links recognition to mobility across borders. [21] Together, these features mean that external standards, machinery, indicators, and pressures act on the same program through one connected structure.

Malaysia's architecture is not without strain, and the documents and independent studies record this honestly. Because accreditation is detailed and continuous, it places a heavy compliance burden on institutions, and there is a risk that audit becomes an exercise in documentation. Studies also show that the framework has not removed graduate skill mismatch: despite strong alignment on paper, some employers continue to report gaps between graduate skills and labor-market needs. [18] These tensions matter, and the Discussion returns to what they mean for a system that wants to borrow from Malaysia. As a description of design, however, the central point stands: Malaysia has built a mechanism in which a credit is tied to an outcome, and the outcome is checked from outside.

**Uzbekistan's emerging architecture**

Uzbekistan has built the main parts of an external quality-assurance system in a very short time. The credit-modular system itself was introduced through the 2019 higher education concept, the 2020 resolution on the educational process, and the 2020 Law on Education. [1],[2],[3] The external machinery followed in 2025. A presidential decree established the National Agency for the Assurance of Education Quality as a central, independent body responsible for quality assurance, assessment, and accreditation across the education system, working to international standards. [8] A government resolution introduced institutional (complex) state accreditation and program state accreditation, using a sequence of institutional self-assessment, independent external expert evaluation, and an on-site visit. [9] The system began at scale: in the first wave, sixty-two higher education in-

stitutions applied for accreditation of more than four hundred programs.

These developments show real and rapid progress. The accreditation cycle that Uzbekistan has adopted — self-assessment, external review, site visit — is the same cycle used in mature systems, and it represents a clear move away from simple state inspection toward recognized external review. Official statements also describe a shift in how quality is understood: away from inputs such as the number of classrooms, staff, and curricula, and toward program effectiveness, links with the labor market, and graduate outcomes. In the terms of this article, Uzbekistan has built the machinery component of external quality assurance, and has begun to express the right intentions about indicators. The missing element is the connective instrument. Uzbekistan does not yet have a national qualifications framework that ties credits to learning outcomes and embeds them in accreditation in the way the MQF does in Malaysia. The credit-modular system defines credits and workload, and the new accreditation system defines review procedures, but these two developments have grown side by side rather than as one structure. As a result, the link between a credit and a demonstrated outcome — the exact point where the policy–practice gap opens — is not yet held firmly by any single instrument. External pressures, such as employer involvement and international recognition, are present in cooperation projects and partner programs, but they are not yet built into the framework as they are in Malaysia's joint professional accreditation. [23], [24] The components exist, in other words, but they are not yet connected.

***Table 1.*** *External quality assurance in Malaysia and Uzbekistan, mapped against four components*

| Component | Malaysia | Uzbekistan (2025) |
|---|---|---|
| **Standards** | Single framework (MQF) links levels, learning outcomes, and credit; supported by codes of practice (COPPA, COPIA) | Credit-modular rules and state accreditation criteria exist, but no unified qualifications framework yet links credits to outcomes |
| **Machinery** | MQA (est. 2007); accreditation cycle of provisional → full → periodic audit; public register (MQR) | National Agency (est. 2025); institutional and program state accreditation; self-assessment → external review → on-site visit |
| **Indicators** | Outcome-based education; instruments such as iCGPA track achievement of learning outcomes | Shifting from inputs toward program effectiveness and employment; outcome measures still developing |
| **Pressures** | Joint accreditation with professional bodies; national internationalization policy | Employer engagement and international cooperation emerging, but not yet embedded in the framework |

# DISCUSSION

**Why the gap persists after the machinery is built**

The comparison helps to explain why a policy–practice gap can remain even after a country builds an external quality-assurance system. Building the machinery is visible, fast, and politically attractive; making it function is slow and depends on capability and culture. This is the situation that Andrews, Pritchett, and Woolcock describe as isomorphic mimicry: an organization adopts the outward form of a successful institution, but the function does not follow. [15] An accreditation agency can exist, codes can be published, and audits can run, while the daily work of improving learning stays unchanged. The risk is greatest at the outcome level, because outcomes are the hardest part of quality to measure and the easiest part to leave on paper. A second risk is premature load-bearing. Uzbekistan's new agency began with a large accreditation workload — more than four hundred programs in its first wave. A young institution asked to carry a heavy load before its capability has matured can be pushed toward formal compliance simply to process the work, which is the opposite of the enhancement the system intends. The international evidence reviewed above shows that this is exactly where systems tend to fall back on cheap, input-based measures. [6], [18]

**What Malaysia's case actually teaches**

Malaysia's lesson is often misread as "create a strong agency." The comparison suggests a more precise lesson: the decisive feature is not the agency by itself, but the connective instrument that ties credits, learning outcomes, and accreditation together. The MQF works because a credit cannot be separated from the outcome it represents; the same framework defines both, and the agency checks both at once. This is what allows quality to travel from the system level down to the module. A system can have an independent agency and still leave the credit–outcome link loose; Malaysia's design closes that link by structure, not by goodwill. At the same time, Malaysia shows that the architecture is necessary but not sufficient. Even with a mature and connected system, Malaysia still reports a compliance burden and a continuing gap between graduate skills and employer needs. [18] This is an important warning. Building the connective framework does not by itself guarantee good outcomes; the framework must be used for enhancement, not only for control. The lesson for any borrower is therefore double: copy the integration, but also adopt the enhancement orientation that makes the integration work.

**Conditional lessons for Uzbekistan**

These findings translate into conditional lessons for Uzbekistan — conditional because they depend on adaptation to the national context, not

on copying Malaysian institutions. [16],[17] First, Uzbekistan should build the missing connective instrument. A national qualifications framework that ties credits to defined learning outcomes, and that is embedded in the accreditation criteria, would connect the credit-modular system and the new accreditation system that currently grow side by side. This is the single most important step, because it closes the exact point where the gap opens. Second, the new agency should be oriented toward enhancement rather than inspection. Uzbekistan's reform explicitly moves away from the older inspection model, but the move is not automatic. If accreditation becomes a documentation exercise, the system will reproduce the inspection culture in a new form. The agency's independence, declared in its founding decree, is an asset here, because independence supports honest review rather than administrative reporting. Third, Uzbekistan should manage the accreditation load carefully to avoid premature load-bearing. Malaysia's experience suggests a maturity gradient: as institutions show that they can manage their own quality, the agency can rely more on their internal systems and less on full external review. Phasing the workload in this way would let the young agency build capability instead of being overwhelmed by it. Fourth, external pressures should be built into the framework rather than left to separate projects. Employer involvement and professional-body recognition, which in Malaysia are part of accreditation itself, would help align programs with the labor market — one of the outcome areas where the gap is widest. International cooperation, already active through partner programs, can support this if it is connected to the national framework rather than kept apart from it.

**From external conditions to internal mechanisms**

These lessons describe the external conditions that must be in place for quality to reach the module. They also set the requirements for the internal mechanisms that operate inside institutions — module design, assessment, and the digital systems used to monitor learning. Those internal mechanisms are the subject of the next stage of this research. The argument developed here provides the lens for that stage: internal tools such as learning-management systems and learning analytics are valuable only if they serve an external framework that ties credits to outcomes. Without that connection, better internal monitoring would only measure activity more precisely; it would not guarantee quality.

## CONCLUSION

This article has argued that external quality assurance works as a transmission mechanism, whose purpose is to carry quality from the system level down to module-level practice in a credit-modular system. The mechanism characteristically fails at the outcome level, producing a policy–practice gap, and it fails because external forms are often treated as compliance rather than used for enhancement. Malaysia shows how a middle-income system can close this gap by connecting credits, learning outcomes, and accreditation in a single framework — and, through its own remaining tensions, shows that this architecture is necessary but not sufficient.

For Uzbekistan, the analysis offers a clear and timely message. The country has built the machinery of external quality assurance — an independent national agency and a state accreditation system — with remarkable speed. What it has not yet built is the connective instrument that ties credits to outcomes, and the enhancement orientation that keeps such a system honest. If these are added, the external architecture can begin to close the policy–practice gap. If they are not, the reform risks isomorphic mimicry: a system that looks complete on paper but does not improve learning in practice. The next stage of this research turns to the internal mechanisms through which institutions can meet these external conditions, and tests the lens developed here against the experience of Uzbek higher education institutions.

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# Last-Mile Interface Bottlenecks and Collaborative Optimization Mechanisms in Seaport–Dry Port Multimodal Transport Systems: Evidence from the Ningbo–Zhoushan–Tashkent Corridor

**Abstract.** The last-mile issue of seaport–dry port multimodal transport systems is often regarded as a city distribution, terminal access or short-haul transport challenge. In this paper the problem is approached from a management and collaborative-governance perspective and an argument is put forward that for cross-border seaport–dry port corridors the last mile is not a spatial problem, but rather an interface-governance problem. The paper introduces the Last-Mile Interface Pressure Index (LMIPI) – a new conceptual diagnostic index based on the interface-governance framework of the paper – and outlines five friction dimensions that interact with each other, namely, physical friction, operational friction, institutional friction, data friction and incentive friction, using the case of the Ningbo–Zhoushan–Tashkent corridor. The study also extends the development of collaborative optimization mechanism of shared visibility, joint planning, process reengineering, responsibility sharing and performance linkage. The paper has two contributions. In theory, it expands last-mile studies to the seaport–dry port interface governance. Practically, it offers a management-oriented diagnostic and optimization framework in order to enhance the reliability and resilience of corridors under the Maritime Silk Road.

**Keywords:** Seaport–Dry Port System; Last-Mile Interface; Multimodal Transport Management; Collaborative Governance; Corridor Resilience; Maritime Silk Road.

## Introduction

Seaport–dry port multimodal transport systems are a key element of international logistics corridors: they serve to expand the port reach into inland markets and shift the port competitiveness into corridor competitiveness. Their practical efficiency not only relies on the handling of the vessels, capacity of the railways and terminal facilities, but also on the ability of autonomous actors to coordinate their plans, exchange information, assign responsibilities, and assess performance at the level of the whole corridor at the interfaces between seaports, railways, border procedures, dry ports, customs authorities, trucking companies, and logistics service providers.

This logic is especially pertinent to the concept of connectivity between China and Central Asia in the context of the Maritime Silk Road. Ningbo–Zhoushan Port represents a large maritime gateway with international shipping, port logistics and inland network functions, while Tashkent represents a strategic inland dry port and logistics node within a double-landlocked regional setting. The corridor is therefore not merely a physical transport route; it is a cross-border governance system that requires reliable interfaces between maritime, rail, regulatory and hinterland actors.

Existing last-mile logistics research has mainly examined urban parcel delivery, e-commerce distribution and consumer-facing delivery services. This literature is useful for understanding delivery costs, route design and customer-service performance, but it does not fully explain the last-mile problem in seaport–dry port multimodal transport systems. In such systems, the critical bottleneck often appears not at the consumer end, but at the management interface where one transport mode, organization, regulatory procedure or information system must hand over responsibility to another.

This paper therefore defines the last mile in a seaport–dry port multimodal transport system as the final cross-modal and cross-institutional interface through which cargo flow, document flow, information flow and responsibility allocation must be aligned before the corridor can operate reliably. This definition shifts the analytical focus from distance to interface governance. It also allows the last-mile problem to be studied as a collaborative management and governance problem rather than as a narrow terminal-access problem.

The paper addresses three research questions. First, what types of last-mile interface bottlenecks arise in seaport–dry port multimodal transport systems? Second, are there interactions between physical, operational, institutional, data and incentive frictions at the interfaces of corridors? Third, what are collaborative governance and management mechanisms that can lessen the frictions and enhance the performance at the corridor level? The paper answers these questions through a mechanism-oriented case study, a newly proposed conceptual diagnostic index and a consolidated bottleneck–mechanism framework.



## Literature Review and Theoretical Positioning

**2.1 Dry ports, port regionalization and hinterland coordination**

It is widely accepted that a dry port is considered as a terminal for intermodal transport located away from the seaport and also offering seaport services including cargo consolidation, storage, customs clearance and distribution (Roso et al., 2009). The idea is related to the port regionalization process as seaports are seen as part of larger hinterland networks instead of independent waterfront nodes (Notteboom & Rodrigue, 2005; Monios & Wilmsmeier, 2012; Wilmsmeier et al., 2011). From this point of view, inland terminals, rail corridors and logistic platforms are elements of seaport competitiveness.

Hinterland coordination studies have demonstrated that decisions made on terminals on a unilateral basis cannot optimize inland transport chains. Coordination between multiple actors is a central issue for seaport communities (Van der Horst & De Langen, 2008), and seaport clusters need governance beyond market exchange (De Langen, 2004). But, these studies do not provide a complete account of the last-mile interface failures that occur at modal, organizational and regulatory boundaries. The study

of transport-geography also sees freight distribution as a spatial reorganization process in the context of 'extended port–hinterland systems' (Hesse & Rodrigue, 2004; Rodrigue & Notteboom, 2009).

**2.2 Collaborative governance as a management theory for interface coordination**

Collaborative governance provides a management-theoretical lens for explaining why interface problems persist and how they may be reduced. Ansell and Gash (2008) conceptualize collaborative governance as a process in which public and non-state actors engage in collective decision-making to manage public problems or assets. Emerson et al. (2012) offer a broader integrative framework that emphasizes principled engagement, shared motivation and joint capacity. Bryson et al. (2015) similarly highlight the design and implementation difficulties of cross-sector collaboration. These concepts are highly relevant to seaport–dry port corridors because no single actor controls the complete chain of seaport operations, railway allocation, border crossing, customs release, dry-port handover and trucking dispatch.

Network governance theory further explains why coordination failure emerges when responsibilities are distributed across autonomous organizations. Provan and Kenis (2008) identify different modes of network governance and argue that network effectiveness depends on how governance arrangements fit the complexity of the task. In a seaport–dry port corridor, physical assets, regulatory authority, information systems and commercial incentives are distributed among different organizations. The management challenge is not simply to optimize one node, but to design coordination rules that make the interfaces between nodes predictable, accountable and performance-oriented.

**2.3 Intermodal planning, digital coordination and management resilience**

Operational research has contributed important tools for intermodal freight planning. Macharis and Bontekoning (2004), Caris et al. (2013) and Steadie-Seifi et al. (2014) identify route selection, terminal planning, service design, schedule synchronization and decision support as central research issues in intermodal freight transport. Their work clarifies the technical and operational side of multimodal optimization. However, many optimization models assume that actors can implement the optimized plan once it is generated. In practice, implementation often depends on institutional alignment, data sharing and incentive compatibility.

A complementary perspective is that of digital coordination research. As demonstrated by Harris et al. (2015), ICT can enhance the multimodal transport by providing better visibility, better predictability and better responsiveness. Flexible service design and coordinated usage of transport capacity are also a theme in synchromodal and physical-internet related research (Behdani et al., 2016; Ambra et al., 2019; Giusti et al., 2019). Such studies demonstrate that digital platforms can help to better coordinate freight, but the challenge is managing whether digital information is integrated into decision rights and escalation routines and shared performance rules.

Research on SC resilience is relevant due to the fact that the failures of last-mile interfaces can diminish the capacity of the corridor to absorb failures. Christopher and Peck (2004) highlight the importance of designing resilient supply chains whereas Ponomarov and Holcomb (2009) identify resilience as being the ability to be adaptive. Wieland and Wallenburg (2013) connect relational competencies with resilience and Ivanov and Dolgui (2020) translate the concept of resilience into viability and survivability for interdependent supply networks. Applied to seaport–dry port corridors, resilience requires not only spare capacity but also coordinated exception handling, clear responsibility allocation and rapid information exchange.

**2.4 Research gap and positioning**

The reviewed literature provides strong foundations but leaves a specific management gap. Port regionalization explains why inland nodes become part of seaport competitiveness. Dry-port research explains how inland terminals extend port functions into hinterlands. Collaborative governance explains why multi-actor coordination is difficult but possible. Intermodal decision-support research provides planning tools, while resilience research highlights the importance of disruption absorption. Existing last-mile logistics research has mainly examined urban freight, e-commerce distribution and city-logistics decision problems (Boysen et al., 2021; Lim et al., 2018; Savelsbergh & Van Woensel, 2016), while much less attention has been paid to last-mile interface governance in cross-border seaport–dry port corridors. However, these streams do not provide a specific conceptual index for diagnosing the combined pressure generated by physical, operational, institutional, data and incentive frictions at last-mile interfaces. This paper therefore positions LMIPI as a proposed conceptual diagnostic index rather than as a previously standardized measurement scale.

## Research Design and Analytical Framework

**3.1 Case-study logic**

This paper adopts a mechanism-oriented case-study design. The aim is not to estimate a universal econometric relationship, but to build a transferable diagnostic and governance framework for last-mile interface optimization. This design is appropriate because the research object is a multi-actor corridor

system in which operational delay, institutional fragmentation and data asymmetry are interdependent rather than isolated variables. The analytical focus is on inter-organizational coordination, institutional alignment, information-sharing arrangements and performance-oriented governance mechanisms.

The Ningbo–Zhoushan–Tashkent corridor is used as an illustrative case because it combines a strong maritime gateway with an inland dry-port node located in a double-landlocked regional context. This pairing makes interface coordination particularly important. The data used in this paper are derived from publicly accessible online sources and planning materials, including operating indicators related to Ningbo–Zhoushan Port, policy information on world-class port construction and inland dry-port development, and peer-reviewed literature on dry ports, port regionalization, collaborative governance, intermodal transport and supply-chain resilience.

**3.2 Proposed LMIPI as an original conceptual diagnostic index**

To structure the diagnostic process, this paper proposes a Last-Mile Interface Pressure Index (LMIPI) as an original conceptual and managerial diagnostic tool derived from the interface-governance framework developed in this study. The index is not adopted from an established standardized scale; it is introduced to organize the analysis of last-mile bottlenecks across multiple interface dimensions. The index is expressed as:

$$LMIPI_i = w_p P_i + w_o O_i + w_s S_i + w_d D_i + w_g G_i$$

where $P_i$ represents physical friction, $O_i$ operational friction, $S_i$ institutional friction, $D_i$ data friction and $G_i$ incentive friction at interface $i$. The weights $w_p$, $w_o$, $w_s$, $w_d$ and $w_g$ represent the relative importance of each friction dimension. In the present paper, LMIPI is used to discipline the diagnostic logic and prevent the analysis from reducing last-mile problems to a single cause.

The paper does not claim that LMIPI is already a calibrated econometric estimator or a validated measurement scale. It is a conceptual and managerial diagnostic index proposed by this study to guide structured diagnosis and future measurement. Empirical calibration may use terminal-level dwell-time observations, rail-slot allocation and utilization data, customs-release records, truck-gate appointment data, container-status timestamps and exception-event logs. This distinction is important for methodological clarity: the diagnostic matrix and LMIPI provide an analytical framework, while subsequent research can transform them into a validated measurement instrument.

**3.3 Analytical protocol and validity safeguards**

The analytical process follows four steps. First, the corridor is decomposed into interface points: seaport–rail, rail–border, border–dry port, dry port–customs and dry port–truck interfaces. Second, each interface is assessed across the five proposed LMIPI dimensions: physical, operational, institutional, data and incentive friction. Thirdly, a connection is made between the bottleneck diagnosis and collaborative governance instruments. Fourth, the proposed mechanism is broken down into the steps to be taken for its implementation on a phase-by-phase basis. This procedure aims to maintain transparency of the analysis and to highlight the logic of management and not overestimate the available data.

## Case Context: Ningbo–Zhoushan–Tashkent Corridor

Ningbo–Zhoushan Port offers a solid base for the seaport-led multimodal integration. Its priorities for 2026 will be world-class port development, global route network expansion, digital operations, sea–rail intermodal development and inland dry-port network growth. They reflect the understanding that competitiveness of ports is not exclusively based on maritime scale but also on the coordination and interface management in inland areas. The real challenge will be to translate the throughput growth into more reliable inland distribution, which will require effective coordination between rail, customs, dry ports and trucking.

Clearly, public operating indicators show a mixed scale pattern. Cargo throughput rose from approximately 1.377 billion tonnes in 2024 to 1.400 billion tonnes in 2025 and is targeted at 1.450 billion tonnes in 2026. Container volume rose from 39.30 million TEU in 2024 to 42.75 million TEU in 2025, with a targeted 47.90 million TEU in 2026. But rail freight is generally flat at around 30 million tonnes and efficiency, slot utilization and interface coordination may be more important than volume growth.

On the Tashkent dry-port side, the core challenge is not simply terminal construction. Tashkent is located within a double-landlocked regional environment. Cargo flows depend on third-country transit, border-crossing procedures, gauge and scheduling interfaces, customs release and inland truck distribution. As a result, the last mile is exposed to both physical and institutional constraints. The corridor must therefore be managed as a connected system rather than as a set of separated nodes.

The following table clarifies how each evidence source is used in the analysis and, equally important, what limitation is attached to each source. This distinction is necessary because the paper develops a mechanism-oriented diagnostic framework rather than a full econometric test.

Table 1. Data sources, analytical purpose and limitations

| Data source | Main information extracted | Analytical role | Limitation / safeguard |
|---|---|---|---|
| Publicly accessible Ningbo–Zhoushan operating indicators | Cargo throughput, container throughput, rail freight volume and related corridor-relevant operating indicators | Provides corridor-scale context and indicates potential interface-management pressure | Used as contextual background rather than confidential operational data or terminal-level proof |
| World-class port policy priorities | Digital operation, sea–rail intermodal transport, inland dry-port network expansion and port capacity improvement | Identifies strategic governance priorities | Policy targets are interpreted as governance signals |
| Peer-reviewed literature | Dry-port development, port regionalization, collaborative governance, intermodal planning, digital coordination and resilience | Supports theoretical positioning and mechanism design | Used to define concepts and avoid unsupported causal claims |
| Case logic and corridor mapping | Seaport–rail, rail–border, border–dry port, dry port–customs and dry port–truck interfaces | Structures the last-mile bottleneck diagnosis | Interface diagnosis remains conceptual and requires future calibration |

After defining the evidence base, the next step is to position the case within its operational context. The selected indicators in Table 2 are therefore not used as a complete statistical dataset; they are used to show why scale expansion at the seaport side can intensify pressure on rail, customs and dry-port interfaces if coordination capacity does not expand at the same pace.

Table 2. Selected operating indicators of Ningbo–Zhoushan Port

| Indicator | 2024 actual | 2025 actual | 2026 target | Interpretation for last-mile interface governance |
|---|---|---|---|---|
| Cargo throughput | 1,377.09 million tonnes | 1,400.00 million tonnes | 1,450.00 million tonnes | Scale growth increases inland handover requirements and coordination pressure. |
| Container throughput | 39.30 million TEU | 42.75 million TEU | 47.90 million TEU | Container growth raises pressure on rail slots, yard capacity, customs release and box visibility. |
| Rail freight volume | 30.49 million tonnes | 30.00 million tonnes | 30.00 million tonnes | Relatively stable rail volume highlights the need for better scheduling, slot utilization and interface management. |
| Dry-port network development | Baseline policy context | Network expansion under implementation | Inland dry ports targeted at 42 | Dry-port expansion requires standardized handover rules and corridor-level governance. |
| Digital operation development | Baseline | Digital operation expansion | Automation and AI-oriented operation | Digital capability should be linked to shared visibility, exception handling and corridor-level KPIs. |

*Note: The indicators are used as contextual background rather than as confidential operational data or econometric variables.*

These indicators support the central argument of the paper: growth in maritime gateway capacity must be matched by interface capacity along the inland corridor. The key for the Tashkent dry-port corridor is not only the building of terminals. Reliability is impacted by transit time, border crossings, gauge differences, customs release, dry-port handover and truck-gate management. If not coordinated, increased flows can result in increased dwell times and decreased corridor performance. It is, therefore, not just a capacity expansion problem, but also a management-coordination problem.

## Results

### 5.1. Last-Mile Interface Bottlenecks

Last-mile interface friction is identified as comprising five types of friction—physical, operational, institutional, data, and incentive. Analytically these categories can be distinguished, but in practice they are closely interwoven. For instance, if there is a limited yard, rail slots may be missed; if a rail slot is missed, the customs handover may be missed; if data are poor, exception handling may be slow; if responsibility is unclear, actors may not solve problems beyond their own operational boundary.

Physical friction includes limitations in terminal capacity, yard design, rail access, truck-gate access and short-haul transfer capacity. These constraints are obvious and often top of mind to managers, but

if handover procedures are fragmented, as are data standards and rules for data responsibility, then new infrastructure alone is unlikely to make a difference to the reliability of corridors.

Operational friction includes schedule mismatch, delay in dwell time and handover delay. The cargo might be available before the rail space is available; wagons might be available before the documentation is ready; the document might not be cleared for customs before the cargo is ready; and the truck might be waiting when an appointment system doesn't match the yard release. This is in line with the research into intermodal planning, which emphasizes the importance of synchronised scheduling and decision support (Caris et al., 2013; SteadieSeifi et al., 2014).

Institutional friction is caused by incomplete regulations, regulatory processes and unclear responsibilities. Collaborative governance issues exist with cross-border flows, as it means different customs regimes, safety rules, and documentary requirements and liability arrangements are in play (Ansell & Gash, 2008; Emerson et al., 2012).

Data friction includes restricted data sharing of ETA, rail schedules, container status, customs events, yard occupancy, documents and truck appointments. The data is only useful for coordination if actors share a common definition of events and periodically update their data (Harris et al., 2015; Ambra et al., 2019).

Finally, incentive friction is the phenomenon whereby actors are optimizing for local goals and not for corridor reliability. Corridor-level KPIs and benefit-sharing are needed to achieve system-level efficiency.

The diagnostic matrix in Figure 1 provides an overview of the relative strength of the five dimensions of friction at the major interface points. It brings the

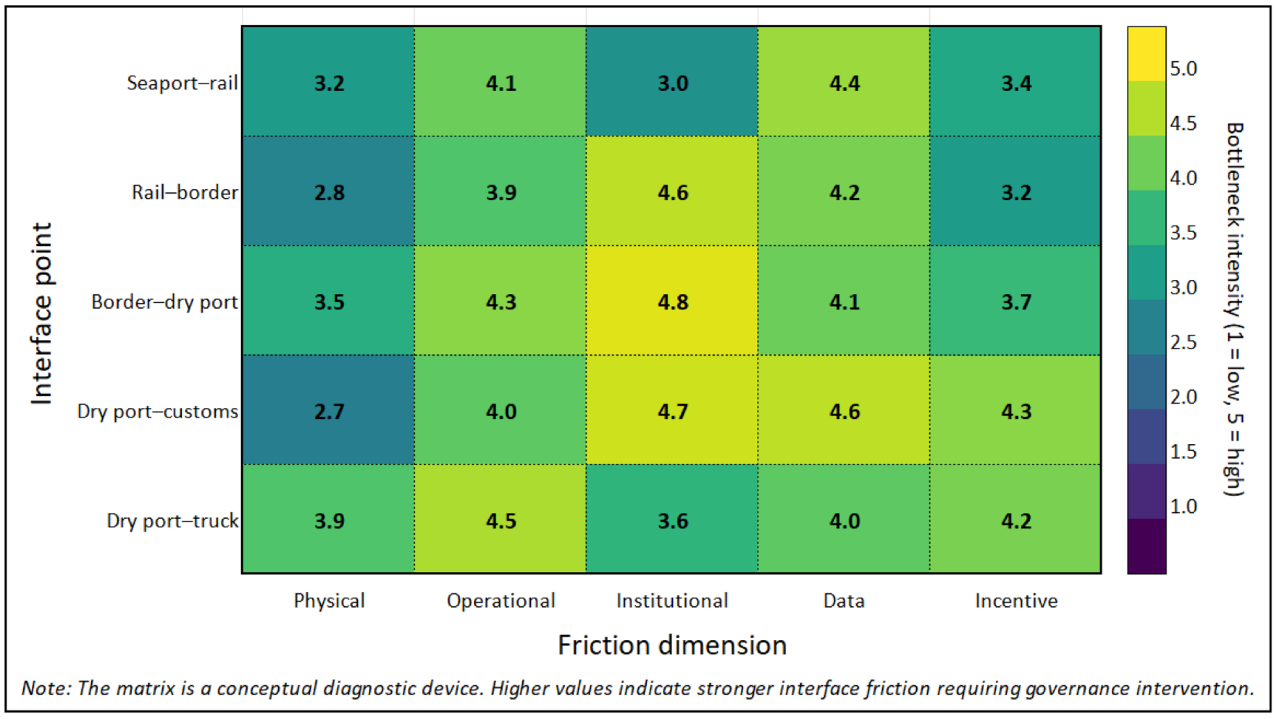



Figure 1. Diagnostic matrix of last-mile interface bottlenecks.

proposed conceptual LMIPI logic to life, and is designed to be 'visible'—the highest pressures should be located where institutional and data interfaces meet handover activities.

Building on this matrix, Table 3 links each friction dimension to its underlying governance cause, the corresponding collaborative optimization mechanism and the expected performance effect. This integrated presentation avoids separate problem and solution lists, showing how diagnosis is translated into managerial intervention.

Table 3. Last-mile interface bottlenecks and collaborative optimization mechanisms

| Friction dimension | Bottleneck and governance cause | Collaborative optimization mechanism | Expected performance effect |
|---|---|---|---|
| Physical friction | Terminal and access constraints arise when terminal capacity, yard layout, rail access and truck-gate access are planned by node rather than by interface. | Capacity-interface coordination; yard and gate-process redesign; terminal-rail capacity matching. | Lower short-haul queues, reduced yard congestion and smoother rail/truck access. |
| Operational friction | Schedule mismatch, missed rail slots and handover delay occur when seaport, railway, dry-port and customs plans are prepared separately. | Joint planning window; corridor dispatching protocol; synchronized ship-rail-dry port-customs planning. | Higher connection reliability and shorter interface dwell time. |
| Institutional friction | Repeated inspection, unclear delay responsibility and documentary uncertainty reflect fragmented rules, responsibilities and escalation procedures. | Institutional alignment; pre-clearance workflow; responsibility-sharing and dispute-resolution rules. | Faster release, fewer unallocated delays and clearer accountability. |
| Data friction | Inconsistent ETA, unknown container status and late exception response result from unshared event definitions and separated information platforms. | Shared visibility platform; standardized event dictionary; integrated ETA, box-status and document-flow information. | Earlier exception detection and more reliable preparation before handover. |
| Incentive friction | Actors optimize node-level KPIs while corridor reliability declines because performance measurement remains node-centered. | Corridor-level KPIs; delay accountability; benefit-sharing mechanism across corridor actors. | Better incentive alignment, lower total interface cost and improved corridor reliability. |

## Collaborative Optimization Mechanism

The proposed collaborative optimization mechanism is organized around five mutually reinforcing instruments: shared visibility, a joint planning window, process reengineering, responsibility sharing and performance linkage. Table 3 consolidates the diagnostic and managerial logic by linking each friction dimension to its typical bottleneck, underlying governance cause, collaborative response and expected performance effect. The table combines problems and solutions in a single table, rather than two tables (diagnostic and recommendation). It is a logic based upon five related measures.

First, shared visibility is required. Vessel ETA, rail schedules, container status, customs-clearance events, yard occupancy, and document status and truck appointments are all important elements of a corridor-level visibility platform. The idea is not just to display the data, but to establish a common operational picture prior to handover failures. Decision rules and escalation procedures, therefore should be tied to digital tools.

Second, actors must have a time for planning together. Not only should there be reconciliation between the different plans prepared by the seaport, railway, dry port and customs actors when there are delays. Rather, before cargo arrives at the interface, vessel cut-off times, allocation of rail-slots, customs clearance and truck appointments and dry-port yard capacity should be coordinated. This planning window is used as the operational core of collaborative optimization.

Third, handover processes must be redesigned to ensure that the flow of the goods, documents and information work at compatible speeds. Sequential waiting can be reduced through pre-declaration, pre-checking and appointment-based gate entry and parallel document processing can help to make the handover from a passive transfer point to a managed one.

Fourth, there is a need to establish responsibility sharing. Typically there is a last mile delay as no actor has clear authority or motivation to coordinate beyond their node. Delay ownership should be set by a corridor contract, memorandum or governance committee, escalation rules and dispute-resolution procedures. Responsibility sharing doesn't imply equal responsibility, but it does need to have very well-defined responsibility at the interfaces.

Fifth, corridor level incentives need to be provided. While node-level KPIs are still important, they can be supplemented with end-to-end reliability, interface dwell time, rail-slot connection rate, customs-release predictability and exception-response time. Sequencing should start at the level of visibility and the procedural alignment, and subsequently, institutional and incentive reforms.

Table 4 breaks down the optimization measures into a sequence of measures to enable the proposed mechanism to be more than just conceptual. Sequencing highlights the need to begin with making data visible and aligning procedures and to proceed to more substantial institutional and incentive change.

Table 4. Phased implementation roadmap for last-mile interface optimization

| Phase | Priority task | Main responsible actors | Expected output |
|---|---|---|---|
| 0-6 months | Define interface event standards and data dictionary | Seaport, dry port, customs, railway, IT platform owner | Common definitions for ETA, box status, release event, slot event and exception event |
| 6-18 months | Pilot joint planning window and pre-clearance workflow | Seaport, railway, dry port, customs, freight forwarders | Reduced missed rail slots and lower document-cycle delay |
| 18-36 months | Institutionalize corridor-level KPIs and incentive linkage | Port authority, corridor governance committee, logistics enterprises | Corridor reliability dashboard and benefit-sharing mechanism |

The roadmap highlights the need to move forward incrementally with last mile optimisation. Short-term solutions can relieve the opacity of information, the delay of coordination, and medium- and long-term solutions must be implemented for a shared responsibility to be institutionalized and incentives to be created on the corridor level.

## Discussion

The results have four theoretical implications. First, the paper broadens the last-mile principle to that of not only delivering to consumers but to the final-mile environments as well. The last mile is more than just the last physical mile to a consignee, in seaport–dry port multimodal systems. It is the last contact point where cargo flow, information flow and documentary flow and responsibility allocation are to be synced. Second, by proposing LMIPI as a conceptual diagnostic index, the paper contributes a structured way to represent multidimensional interface pressure without overstating it as a calibrated econometric estimator. Third, the paper connects port regionalization with collaborative governance. Although regionalisation of ports helps to understand why inland nodes have been included in the competitiveness of a seaport, it does not explain how the coordination needs to be organised when various autonomous actors control different parts of the interface. The essence of collaborative governance is dedicated to shared rules, institutionalized coordination, trust-building, and joint decision-making, which fill this gap. Fourth, performance optimisation is also associated with digital coordination in the paper. Unless there is joint planning authority and sharing of responsibility and incentives at the corridor level, visibility platforms alone will not help to cut handover delays. The essential key management principle should be that technology can only generate value when it is integrated with suitable organizational structures and rules of performance.

Corridor-level governance and interface standardization should thus be prioritised for the Ningbo-Zhoushan-Tashkent corridor. This involves the definitions of commonly used events, the standard to use for the data, rules for handover, responsibility for delay and shared performance indicators. Sea–inland connectivity should not only be assessed in terms of routes, terminals and dry ports, but also by the quality and reliability of the interfaces linking them, as far as the wider Maritime Silk Road is concerned.

## Limitations and Future Research

This paper is conceived as a management study, rather than an econometric evaluation, with a focus on mechanisms. The publicly available operating indicators give helpful general information on the corridor level, but do not include the terminal-level information on dwell times, rail-slot usage, customs-release times or truck-gate appointment times. Hence, the proposed LMIPI and the diagnostic matrix are provided as structured analytical tools instead of validated measurement instruments.

One drawback is that the bottleneck intensity matrix remains conceptual, as opposed to a measure from a survey or sensor. Future studies can enhance the framework using other data, including expert interviews, Delphi scoring, terminal event data, customs-release records and platform-based exception logs. These data will enable the weights of the proposed LMIPI to be calibrated and applied to corridors.

Finally, the paper takes the Ningbo-Zhoushan-Tashkent corridor as a case study. It would be beneficial to do comparative studies of several China–Central Asia corridors. These studies might include aspects of varying interface pressures by rail route, border node, dry-port maturity and customs arrangement/digital-platform capability.

## Conclusion

This paper suggests that the last-mile problem in seaport–dry port multimodal transport systems can be seen as an interface-governance problem. On the Ningbo-Zhoushan-Tashkent corridor, another key challenge is how to connect maritime gateways and inland dry-port nodes through physical, operational, institutional, data and incentive interfaces. The proposed LMIPI offers an innovative conceptual and management diagnostic lens to organize these interacting pressures.

The concept of shared visibility, joint planning, process reengineering, responsibility sharing and performance linkage is a practical way to change the fragmented last mile interfaces to coordinated corridor interfaces. The study shows the collaborative governance mechanisms that are able to diminish the interface friction and thereby enhance the corridor-level performance of complex multimodal transport systems to the benefit of management research. This article contributes to the optimization-method aspect of seaport–dry port

collaborative governance that addresses the usage of an original conceptual index and a collaborative mechanism to diagnose and alleviate the pressure at the last mile interface.

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# EKOLOGIK BARQARORLIK: INSON FAOLIYATIDA MUVOZANATNI SAQLASHNING FALSAFIY ASOSLARI

**Annotatsiya.** Maqolada ekologik barqarorlikni ta’minlashning falsafiy asoslari qurolli mojarolar sharoiti misolida tadqiq etilgan bo‘lib, ekologiya falsafasining klassik paradigmalari (antroposentrizm va ekotsentrizm) inson faoliyatini asosan tinch xo‘jalik faoliyati doirasida talqin qilinadi. Shu bois qurolli mojaro sharoitidagi ekologik buzilishni izohlash imkoniyati cheklangan bo‘ladi. Xalqaro gumanitar huquq esa aksincha, atrof-muhitni himoya qiluvchi normalarni ishlab chiqqan bo‘lsa-da, ularni asosan instrumental tarzda, ya’ni insonga yetkaziladigan zarar orqali asoslaydi. Tadqiqotning maqsadi ushbu normativ bo‘shliqni falsafiy jihatdan to‘ldirish va “ekologik barqarorlik va ekologik xavfsizlik” uzviyligining nazariy modelini ishlab chiqishdan iboratdir. Tadqiqotda falsafiy-germenevtik, qiyosiy-paradigmal, tizimli tahlil hamda xalqaro-huquqiy hujjatlarning kontent-tahlili metodlaridan foydalanildi. Empirik illyustrativ baza sifatida qurolli mojarolarning ekologik oqibatlariga oid xalqaro monitoring ma’lumotlari jalb etildi. Tadqiqot natijasida qurolli mojaroning ekologik ta’siri uch darajali zanjir sifatida modellashtirildi.

**Kalit so‘zlar:** ekologik barqarorlik, ekologik xavfsizlik, ekologiya falsafasi, qurolli mojaro, mas’uliyat etikasi, antroposentrizm, ekotsentrizm, Martens deklaratsiyasi.

## KIRISH

Ekologik barqarorlik muammosi XXI asr ijtimoiy-falsafiy tafakkurining markaziy mavzularidan biriga aylandi. Biroq ushbu muammoning tadqiq etilishida sezilarli assimmetriya kuzatiladi. Ilmiy adabiyotda inson faoliyatining tabiatga ta'siri, qoida tariqasida, tinch xo'jalik faoliyati nuqtai nazaridan, ya'ni sanoatlashuv, urbanizatsiya, iste'mol o'sishi va resurslardan foydalanish jarayonlari orqali tahlil qilinadi. Shu bilan birga, insoniyat tarixida tabiiy muhitga eng qisqa muddatda eng katta ko'lamli zarar yetkazgan faoliyat turi bo'lmish qurolli mojaro falsafiy tahlil doirasidan ko'pincha chetda qolmoqda. Bu esa ekologik barqarorlik nazariyasining ichki to'liqsizligini keltirib chiqaradi. Tabiatga nisbatan mas'uliyat haqidagi ta'limot aynan mas'uliyat eng ko'p buziladigan holatni izohlashga ojizlik qiladi.

Mavzuning dolzarbligi bir necha omil bilan belgilanadi. Birinchidan, zamonaviy qurolli mojarolarning ekologik oqibatlari mahalliy chegaralardan chiqib, transchegaraviy va global xarakter kasb etmoqda. Ikkinchidan, tabiiy resurslar, ya'ni suv, yer va energiya manbalari uchun raqobat mojarolarning kelib chiqish sabablari orasida tobora ko'proq uchramoqda. Demak, ekologik omil endi faqat urushning oqibati emas, balki uning sababi sifatida ham namoyon bo'lmoqda. Uchinchidan, harbiy faoliyatning iqlim tizimiga ta'siri statistik jihatdan sezilarli darajaga yetdi. Xalqaro monitoring tashkilotlarining baholariga ko'ra, dunyo bo'yicha harbiy tuzilmalarning faoliyati global issiqxona gazlari emissiyasining taxminan 5,5 foizini tashkil etadi, biroq bu ko'rsatkich xalqaro hisobot tizimlarida deyarli aks etmaydi [12]. To'rtinchidan, mojarolarning ekologik zararini hisoblash metodologiyasi shakllanmoqda va bu falsafiy jihatdan yangi savolni kun tartibiga qo'ymoqda. Ya'ni zararni kim, kim oldida va qaysi vaqt gorizontida qoplashi kerak degan savol dolzarblashmoqda.

Mamlakatimizda olib borilayotgan islohotlar ham mazkur yo'nalishning dolzarbligini kuchaytiradi. O'zbekiston Respublikasi Konstitutsiyasining yangi tahririda iqtisodiy, ijtimoiy va madaniy huquqlar qatorida ekologik huquqlar mustaqil bob sifatida mustahkamlangani atrof-muhitga munosabatning konstitutsiyaviy qadriyat maqomiga ko'tarilganini bildiradi [2]. "O'zbekiston 2030" strategiyasida ekologik muhitni yaxshilash ustuvor yo'nalishlardan biri sifatida belgilangan [3]. O'zbekiston Respublikasi Prezidenti Sh.Mirziyoyev "Yangi O'zbekiston strategiyasi" asarida zamonaviy tahdidlarning tabiatini quyidagicha ta'riflaydi: "Xavfsizlik va barqarorlikka tahdidlar bugungi kunda muayyan bir yirik qurolli mojaro shaklida emas, balki, harbiy-siyosiy, iqtisodiy, ekologik va inson resurslariga ta'sir qiluvchi hodisalarning salbiy, tanazzulga olib boruvchi oqibatlari shaklida namoyon bo'lish ehtimoli nisbatan yuqori bo'lib qolmoqda" [1]. Ushbu ta'rifning metodologik ahamiyati shundaki,



unda ekologik omil xavfsizlik tahdidlarining mustaqil turi sifatida emas, balki boshqa omillar bilan uzviy bog'liq holda ko'rsatilgan. Aynan mana shu uzviylikni nazariy jihatdan asoslash mazkur tadqiqotning bosh vazifasini tashkil etadi.

Mintaqaviy kontekstda ushbu muammoning alohida o'lchovi mavjud. Orol dengizining qurishi ekologik halokatning zamonaviy tarixdagi eng yirik namunalaridan biri bo'lib, u harbiy harakatlar natijasida emas, balki tabiiy resurslardan strategik foydalanishning noto'g'ri modeli tufayli yuzaga kelgan [11]. Ushbu holat muhim nazariy xulosaga olib keladi. Ekologik tizimning yemirilishi uchun urush shart emas, chunki urush faqat shu jarayonni tezlashtiruvchi va konsentratsiyalovchi omil hisoblanadi. Demak, ekologik barqarorlik va xavfsizlik o'rtasidagi bog'liqlik favqulodda holat bilan cheklanmaydi, balki tinchlik davridagi resurs siyosatiga ham taalluqli bo'ladi.

## MAVZUGA OID ADABIYOTLAR TAHLILI

Ekologik barqarorlik tushunchasi ilmiy muomalaga BMTning 1987-yilda e'lon qilingan "Bizning umumiy kelajagimiz" (Our Common Future) ma'ruzasi orqali kirdi. Unda barqaror rivojlanish kelajak avlodlarning o'z ehtiyojlarini qondirish imkoniyatini cheklamagan holda bugungi ehtiyojlarni qondirish sifatida ta'riflangan [28]. Ushbu ta'rifning falsafiy o'zagi avlodlararo adolat g'oyasi bo'lib, u mazkur tadqiqot-

ning ham nazariy tayanchini tashkil etadi. Tadqiqot muammosi esa bir-biri bilan kam kesishuvchi to‘rt ilmiy an’ana chorrahasida joylashgan bo‘lib, ularning har biri masalaning muayyan qirrasini yoritadi.

Birinchi an’ana ekologiya falsafasining klassik yo‘nalishi hisoblanadi. A.Leopoldning “yer etikasi” (land ethic) konsepsiyasi axloqiy hamjamiyat chegaralarini tuproq, suv, o‘simlik va hayvonot dunyosini qamrab olguncha kengaytirish g‘oyasini ilgari surdi va tabiatga nisbatan munosabatni foydalanish emas, balki a’zolik munosabati sifatida talqin qildi [5]. A.Naess “chuqur ekologiya” (deep ecology) yo‘nalishini asoslab, ekologik muammolarni texnologik yechimlar darajasida emas, balki dunyoqarash darajasida hal qilish zarurligini ko‘rsatdi [6]. M.Bookchin “ijtimoiy ekologiya” konsepsiyasida tabiat ustidan hukmronlik g‘oyasining ildizlarini insonning inson ustidan hukmronligida ko‘rdi va shu tariqa ekologik muammoni ijtimoiy-siyosiy tuzilma bilan bog‘ladi [7]. H.Jonas esa “mas’uliyat imperativi” asarida texnologik sivilizatsiya sharoitida axloqning vaqt o‘lchovini tubdan qayta ko‘rib chiqish zarurligini asosladi. Uning fikricha, agar an’anaviy etika bir zamon va bir makonda yashovchi subyektlar munosabatini tartibga solgan bo‘lsa, zamonaviy etika hali tug‘ilmagan avlodlar oldidagi mas’uliyatni ham o‘z ichiga olishi lozim [4].

Mazkur an’ananing kuchli tomoni shundaki, u tabiatga nisbatan axloqiy munosabatning ontologik asoslarini ishlab chiqqan. Cheklovi esa ushbu konsepsiyalarning barchasi tinchlik holatini yashirin shart sifatida qabul qilishida namoyon bo‘ladi. Leopoldning “hamjamiyat” metaforasi ham, Naessning “o‘zlikni kengaytirish” g‘oyasi ham, Jonasning “kelajak avlodlar” konstruksiyasi ham uzluksiz ijtimoiy davomiylikni nazarda tutadi. Qurolli mojaro esa aynan shu davomiylikni uzadi.

Ikkinchi an’ana atrof-muhitni qurolli mojaro sharoitida muhofaza qilishga oid xalqaro-huquqiy tadqiqotlardan iborat. 1949-yilgi Jeneva konvensiyalariga 1977-yilgi I Qo‘shimcha bayonnomaning 35(3) va 55-moddalari tabiiy muhitga “keng ko‘lamli, uzoq muddatli va jiddiy” zarar yetkazish vositalarini qo‘llashni taqiqlaydi [14]. 1976-yilgi ENMOD konvensiyasi atrof-muhitga ta’sir ko‘rsatish usullarini harbiy maqsadlarda qo‘llashni man etadi [15]. 1954-yilgi Gaaga konvensiyasi madaniy boyliklarni himoya qilish orqali muhofaza obyektlari doirasini kengaytirdi [16]. Xalqaro Huquq Komissiyasi 2022-yilda o‘zining 73-sessiyasida qurolli mojarolar bilan bog‘liq holda atrof-muhitni muhofaza qilishga oid 27 ta loyiha tamoyilini (PERAC) ikkinchi o‘qishda qabul qildi. Ularning konseptual yangiligi shundaki, muhofaza rejimi mojaroning uch temporal bosqichini, ya’ni mojarodan oldingi, mojaro davridagi va mojarodan keyingi holatni qamrab oladi [17].

Uchinchi an’ana xavfsizlik nazariyasidagi ekologik burilish bilan bog‘liq. Kopengagen maktabi (B.Buzan, O.Wæver, J. de Wilde) xavfsizlik tushunchasini harbiy sohadan tashqariga chiqarib, uning besh sektorini, ya’ni harbiy, siyosiy, iqtisodiy, ijtimoiy va ekologik sektorlarini ajratdi hamda “sekyuritizatsiya” nazariyasi orqali muayyan masalaning qanday qilib favqulodda xavfsizlik masalasiga aylanishi mexanizmini ko‘rsatdi [8]. Ushbu yondashuv ekologik muammoni siyosiy kun tartibiga ko‘tarish imkonini berdi, biroq u bilan birga jiddiy nazariy xavfni ham keltirib chiqardi. Sekyuritizatsiya masalani favqulodda holat mantiqiga bo‘ysundiradi, favqulodda holat esa ta’rifiga ko‘ra vaqtinchalik va istisnoviy bo‘ladi. Ekologik barqarorlik esa, aksincha, uzluksizlik va uzoq muddatlilikni talab qiladi. Shu tariqa “barqarorlik” va “xavfsizlik” tushunchalari o‘rtasida yashirin mantiqiy ziddiyat vujudga keladi va uni bartaraf etish mazkur tadqiqotning nazariy vazifalaridan birini tashkil etadi.

To‘rtinchi an’ana urush etikasi (just war theory) doirasidagi zamonaviy izlanishlarni qamrab oladi. T. Meisels o‘zining “Environmental Ethics of War” tadqiqotida urush etikasining an’anaviy kategoriyalarini, ya’ni jus ad bellum, jus in bello va jus post bellum tushunchalarini ekologik mazmun bilan to‘ldirishni taklif qiladi hamda urush nazariyotchilari tomonidan harbiy-ekologik etikaga nisbatan kam e’tibor qaratilganini alohida ta’kidlaydi [9]. Muallif shuningdek ekologik tajovuzga javob choralari ham tabiatga nomutanosib zarar yetkazmasligi lozimligi haqidagi muhim tamoyilni asoslaydi [10]. Ekotsid tushunchasining nazariy evolyutsiyasi va uning urush bilan o‘zgaruvchan munosabati R.Killean tadqiqotlarida tahlil qilingan [13]. Qurolli mojarolarning atrof-muhitga ta’sirining empirik umumlashtirilishi esa Y.D.Wirtu va U.Abdela ishlarida keltirilgan [18].

Mahalliy ilmiy adabiyotda ekologik muammolarning falsafiy va amaliy jihatlariga oid salmoqli tadqiqotlar mavjud. A.Sultonov ekologiya falsafasining nazariy asoslari, ekologik tafakkur va madaniyatni rivojlantirish masalalarini yoritgan [19]. I.Ergashev ekologik xavfsizlikni ta’minlashning dolzarb masalalarini tadqiq etgan [20]. E.Yusupov ekologik ta’lim va tarbiyaning barqaror rivojlanishdagi o‘rnini asoslagan [21]. Y.Shodimetov ekologik iqtisodiyot asoslarini ishlab chiqqan [22]. M.Maxkamova ekologik xavfsizlik muammolari va yechimlarini tahlil qilgan [23]. X.Tursunov esa ekologik siyosatning institutsional asoslari va ekologik qonunchilikni rivojlantirish masalalarini o‘rgangan [24].

Tadqiqot bo‘shlig‘i. Adabiyotlar tahlili ikki asosiy bo‘shliqni aniqlash imkonini berdi. Birinchidan, ekologiya falsafasi va urush etikasi bir-biridan mustaqil ravishda rivojlangan. Ekologiya falsafasi urushni o‘z predmeti doirasidan chiqarib qo‘ygan, urush etikasi esa tabiatni asosan gumanitar zararning fon omili sifatida ko‘rgan. Ikkinchidan, xalqaro-huquqiy normalar mavjud bo‘lsa-da, ular tabiat muhofazasini

instrumental tarzda, ya’ni insonga yetkaziladigan zarar orqali asoslaydi va shu bois tabiatga yetkazilgan zararning o‘z-o‘zicha axloqiy salbiyligini nazariy jihatdan izohlay olmaydi. Mahalliy adabiyotda esa ekologik barqarorlik va ekologik xavfsizlik tushunchalari, qoida tariqasida, yonma-yon qo‘llaniladi, biroq ularning mantiqiy uzviyligi maxsus tahlil predmetiga aylantirilmagan. Mazkur maqola aynan shu bo‘shliqni to‘ldirishga qaratilgan.

## TADQIQOTNING MAQSADI

Tadqiqotning maqsadi qurolli mojarolar sharoitida ekologik barqarorlikni ta’minlashning falsafiy asoslarini aniqlash hamda ekologik barqarorlik bilan ekologik xavfsizlik uzviyligining nazariy modelini ishlab chiqishdan iborat.

Ushbu maqsaddan kelib chiqib, quyidagi tadqiqot savollari shakllantirildi.

1) Ekologiya falsafasining klassik paradigmalari, ya’ni antroposentrizm va ekotsentrizm qurolli mojaro sharoitidagi ekologik buzilishni qanday izohlaydi hamda ularning izohlash chegaralari qayerda joylashgan?

2) “Ekologik barqarorlik” va “ekologik xavfsizlik” tushunchalari o‘rtasidagi mantiqiy munosabat qanday tuzilishga ega va ular yagona nazariy konstruksiyada birlashtirilishi mumkinmi?

3) Xalqaro gumanitar huquqning atrof-muhitni muhofaza qiluvchi normalari qanday falsafiy asosga tayanadi va ushbu asosning cheklovlari nimadan iborat?

4) Ekologik ongni shakllantirishning qanday darajalari mojaro xavfi mavjud sharoitda samarali hisoblanadi?

Tadqiqotning ilmiy farazi quyidagicha ifodalanadi. Ekologik barqarorlik faqat tinch xo‘jalik faoliyati doirasida emas, balki xavfsizlik kategoriyasi bilan uzviy birlikda tushunilgandagina to‘liq nazariy mazmun kasb etadi. Antroposentrizm va ekotsentrizm dixotomiyasi o‘rniga mas’uliyat markazli uchinchi paradigma, ya’ni H.Jonasning mas’uliyat imperativini harbiy-ekologik sohaga kengaytirish asosida shakllanadigan paradigma kuchliroq izohlash qobiliyatiga ega bo‘ladi.

Tadqiqotning ilmiy yangiligi quyidagilardan iborat.

a) ekologiya falsafasining klassik paradigmalari qurolli mojaro konteksti nuqtai nazaridan qiyosiy tahlil qilinib, ularning izohlash chegaralari aniqlangan,

b) qurolli mojaroning ekologik ta’siri uch darajali sababiy zanjir sifatida modellashtirilgan,

c) ekologik barqarorlik bilan ekologik xavfsizlik uzviyligining aksiologik, normativ va institutsional darajalarni qamrab oluvchi uch darajali modeli ishlab chiqilgan,

d) antroposentrizm va ekotsentrizm dixotomiyasiga muqobil sifatida mas’uliyat markazli paradigma asoslangan hamda ekologik mas’uliyatning temporal kengayishi tamoyili ta’riflangan,

e) Martens deklaratsiyasining “insoniylik qonunlari va ijtimoiy ong talablari” formulasini ekologik mazmun bilan boyitish g‘oyasi, ya’ni shartli ravishda “ekologik Martens bandi” tushunchasi ilmiy muomalaga kiritilgan.

## TADQIQOT METODOLOGIYASI

Tadqiqot nazariy-konseptual xarakterga ega bo‘lib, u falsafiy tahlilni xalqaro-huquqiy hujjatlarning matniy tahlili bilan uyg‘unlashtiruvchi fanlararo yondashuvga asoslanadi. Metodologik asos sifatida ekologiya falsafasi, barqaror rivojlanish konsepsiyasi, mas’uliyat etikasi hamda xavfsizlikning kengaytirilgan (Kopengagen maktabi) talqini qabul qilindi.

Falsafiy-germenevtik tahlil metodi orqali asosiy manbalarning, ya’ni Leopold, Naess, Bookchin va Jonas asarlarining matniy mazmuni tadqiq etildi. Ushbu metod tanlanishining sababi shundaki, tadqiqot predmeti empirik emas, balki konseptual tabiatga ega. Gap muayyan hodisani o‘lchash haqida emas, balki uni izohlovchi tushunchaviy apparatning ichki mantiqini ochish haqida bormoqda. Germenevtik yondashuv har bir konsepsiyaning yashirin shartlarini, jumladan tinchlik holatining aytilmagan shart sifatida qabul qilinishini aniqlash imkonini berdi.

Qiyosiy-paradigmal tahlil metodi orqali antroposentrik va ekotsentrik yondashuvlar bir xil mezonlar tizimi asosida solishtirildi. Taqqoslash mezonlari sifatida tabiatning qadriyat maqomi, mas’uliyat subyekti, vaqt gorizonti va mojaro sharoitidagi izohlash qobiliyati olindi. Taqqoslash natijalari 1-jadvalda umumlashtirilgan.

Xalqaro-huquqiy hujjatlarning kontent-tahlili metodi bilan I Qo‘shimcha bayonnoma, ENMOD konvensiyasi, Gaaga konvensiyasi va PERAC tamoyillari matnlari o‘rganildi. Tahlil birligi sifatida atrof-muhit muhofazasini asoslovchi argument turi, ya’ni instrumental yoki o‘z-o‘zicha qadriyatga asoslangan argument qabul qilindi.

Tizimli tahlil va konseptual modellashtirish metodlari yordamida tadqiqotning asosiy natijasi bo‘lgan uch darajali model qurildi. Modellashtirishda darajalarni ajratish mezoni sifatida savol turi olindi. Aksiologik daraja “nima uchun?”, normativ daraja “qanday qoida?”, institutsional daraja esa “kim va qanday amalga oshiradi?” savollariga javob beradi.

Empirik illyustrativ baza. Tadqiqotda birlamchi empirik ma’lumotlar to‘planmagan. Nazariy xulosalarni illyustratsiya qilish uchun xalqaro monitoring tashkilotlarining ochiq ma’lumotlaridan foydalanildi. Ma’lumotlarni tanlashda uch mezonga amal qilindi.

Birinchisi manbaning xalqaro e’tirofga ega ekanligi, ikkinchisi metodologiyaning ochiq e’lon qilinganligi, uchinchisi esa ma’lumotlarning 2020 va 2025-yillar oralig‘iga oidligi. Ushbu ma’lumotlar dalil emas, balki nazariy tezisning ko‘rgazmali tasdig‘i sifatida qo‘llanildi.

Tadqiqotning cheklovlari. Birinchidan, ish nazariy tahlilga asoslangan bo‘lib, unda muallif tomonidan o‘tkazilgan sotsiologik yoki empirik tadqiqot natijalari keltirilmagan. Ikkinchidan, keltirilgan miqdoriy ko‘rsatkichlar turli metodologiyalarga asoslangan manbalardan olingani bois ular o‘zaro to‘g‘ridan-to‘g‘ri taqqoslanmaydi. Uchinchidan, tahlil xalqaro qurolli mojarolarga qaratilgan bo‘lib, ichki mojarolar va gibrid tahdidlarning ekologik o‘lchovi alohida tadqiqot predmeti bo‘lishi lozim. Ushbu cheklovlar xulosalarning nazariy maqomini belgilaydi va ularni empirik umumlashtirish sifatida talqin qilishga yo‘l qo‘ymaydi.

## TADQIQOT NATIJALARI

***1. Klassik paradigmalarning izohlash chegaralari***

Qiyosiy-paradigmal tahlil shuni ko‘rsatdiki, antroposentrik va ekotsentrik yondashuvlarning har biri qurolli mojaro kontekstida o‘ziga xos nazariy qiyinchilikka duch keladi.

Antroposentrik paradigma tabiatni inson ehtiyojlarini qondirish manbai sifatida talqin qiladi va shunga muvofiq tabiatga yetkazilgan zararni inson farovonligiga yetkazilgan zarar orqali baholaydi. Ushbu yondashuvning amaliy kuchi shundaki, u aniq huquqiy konstruksiyalar qurish imkonini beradi. Zarar o‘lchanadi, javobgarlik belgilanadi, kompensatsiya hisoblanadi. Biroq mojaro sharoitida uning cheklovi yaqqol namoyon bo‘ladi. Agar hudud aholidan bo‘shatilgan bo‘lsa yoki zarar bevosita insonga tegmasa, antroposentrik mantiq bo‘yicha bunday harakat axloqiy jihatdan neytral maqom oladi. Bu esa intuitiv axloqiy mulohazaga zid keladi.

Ekotsentrik paradigma tabiatning o‘z-o‘zicha qadriyatini tan olib, ushbu qiyinchilikni nazariy jihatdan bartaraf etadi. Biroq u boshqa muammoni keltirib chiqaradi. Mojaro sharoitida inson hayoti va ekotizim yaxlitligi o‘rtasida to‘qnashuv yuzaga kelganda, ekotsentrik mantiq ustuvorlikni belgilash mezonini bermaydi. Bundan tashqari, ekotsentrizm mas’uliyat subyektini aniq ko‘rsatmaydi, chunki u tabiatga nisbatan umumiy munosabatni ta’riflaydi, lekin muayyan qaror qabul qiluvchi shaxsning majburiyatini ifodalamaydi. Harbiy sohada esa qaror qabul qilish zanjiri aniq va shaxsiylashtirilgan bo‘ladi.

Ushbu tahlil muhim xulosaga olib keladi. Ikkala paradigma ham bir xil struktural kamchilikka ega, ya’ni ularning har biri tabiatga munosabatni holat (state) sifatida ta’riflaydi, jarayon va qaror sifatida emas. Mojaro esa mohiyatan qarorlar ketma-ketligidir. Demak, izohlash qobiliyatiga ega paradigma tabiatning maqomidan emas, balki subyektning mas’uliyatidan kelib chiqishi lozim.

*1-jadval.*

**Ekologik paradigmalarning qiyosiy tahlili**

| Mezon | Antroposentrik paradigma | Ekotsentrik paradigma | Mas’uliyat markazli paradigma (taklif etilayotgan) |
|---|---|---|---|
| Tabiatning qadriyat maqomi | Instrumental, inson ehtiyoji orqali | O‘z-o‘zicha (intrinsik) qadriyat | Ikki qadriyat munosabati subyekt mas’uliyati orqali muvofiqlashtiriladi |
| Mas’uliyat subyekti | Aniq belgilangan (inson, davlat) | Diffuz, umumlashgan | Aniq belgilangan va qaror zanjiri bo‘yicha taqsimlangan |
| Vaqt gorizonti | Joriy avlod manfaati | Ekotizimning tabiiy davomiyligi | Avlodlararo, ya’ni qaror oqibatining amal qilish muddati |
| Zararni baholash mezoni | Insonga yetkazilgan zarar | Ekotizim yaxlitligining buzilishi | Qaytarib bo‘lmaslik darajasi va temporal cho‘ziluvchanlik |
| Mojaro sharoitidagi izohlash qobiliyati | Cheklangan, aholisiz hududda kuchsizlanadi | Cheklangan, ustuvorlik mezonini bermaydi | Kengaytirilgan, qaror darajasida amal qiladi |
| Normativ tatbiq etilishi | Yuqori (huquqiy konstruksiyalarga mos) | Past (operatsionallashtirish qiyin) | O‘rta va yuqori (etik kodekslar hamda qoidalar orqali) |

***2. Qurolli mojaroning ekologik ta’siri va uning uch darajasi***

Tizimli tahlil natijasida qurolli mojaroning atrof-muhitga ta’sirini bir jinsli hodisa sifatida emas, balki sababiy zanjirning uch darajasi sifatida ko‘rib chiqish maqsadga muvofiqligi aniqlandi (1-rasm).

| | |
|---|---|
| **I daraja BEVOSITA** *(harbiy harakat davomida)* | • portlash va yong‘inlar natijasida atmosferaning ifloslanishi<br>• o‘rmon va yaylovlarning yo‘q qilinishi, tuproq qoplamining buzilishi<br>• suv havzalarining neft mahsulotlari va portlovchi moddalar bilan zaharlanishi<br>• biologik xilma-xillikning bevosita yo‘qotilishi<br>• sanoat va ekologik xavfli obyektlarning shikastlanishi |

| | |
|---|---|
| **II daraja**<br>**BILVOSITA**<br>*(institutsional inqiroz orqali)* | · ekologik monitoring va nazorat tizimlarining ishdan chiqishi<br>· majburiy migratsiya va aholi zichligining keskin o'zgarishi<br>· qishloq xo'jaligi yerlaridan foydalanishning izdan chiqishi<br>· chiqindilarni boshqarish va suv ta'minoti infratuzilmasining yemirilishi<br>· tabiatni muhofaza qilish xarajatlarining harbiy sarflar hisobiga qisqarishi |
| **III daraja**<br>**TIZIMLI**<br>*(temporal va avlodlararo o'lcham)* | · tuproq va suvdagi ifloslanishning o'nlab yillarga cho'zilishi<br>· portlamagan o'q-dorilar tufayli hududlarning xo'jalik aylanmasidan chiqishi<br>· qayta tiklash jarayonining o'zi keltirib chiqaradigan uglerod izi<br>· ekologik zararning transchegaraviy va global tarqalishi<br>· kelajak avlodlar resurs bazasining qisqarishi |

*1-rasm. Qurolli mojaroning ekologik ta'sir zanjiri (muallif ishlanmasi)*

Birinchi daraja bevosita ta'sirdan iborat. Bu harbiy harakatlar davomida yuzaga keladigan va bevosita kuzatiladigan zarar bo'lib, unga portlash va yong'inlar natijasida atmosferaning ifloslanishi, o'rmon va yaylovlarning yo'q qilinishi, suv havzalarining neft mahsulotlari va portlovchi moddalar bilan zaharlanishi hamda ekologik xavfli sanoat obyektlarining shikastlanishi kiradi. Tarixiy misollar bu darajaning ko'lamini ko'rsatadi. Vetnam urushi davrida defoliantlar qo'llanishi natijasida uch million akrdan ortiq o'rmon massivi yo'q qilingan. Fors ko'rfazi urushida esa olti yuzdan ortiq neft qudug'ining yonishi mintaqada oltingugurt oksidlari emissiyasining taxminan 50 foizga oshishiga olib kelgan [18].

Ikkinchi daraja bilvosita ta'sirni qamrab oladi. Bu darajada zarar tabiatga bevosita emas, balki uni himoya qiluvchi ijtimoiy institutlar orqali yetkaziladi. Ekologik monitoring va nazorat tizimlari ishdan chiqadi, chiqindilarni boshqarish va suv ta'minoti infratuzilmasi yemiriladi, majburiy migratsiya natijasida aholi zichligi keskin o'zgaradi, qishloq xo'jaligi yerlaridan foydalanish izdan chiqadi, tabiatni muhofaza qilish xarajatlari esa harbiy sarflar hisobiga qisqaradi. Ushbu darajaning falsafiy ahamiyati shundaki, u ekologik zararning ijtimoiy tabiatini oshkor qiladi. Tabiat mustaqil ravishda emas, balki ijtimoiy institutlar vositasida muhofaza qilinadi va institutlar yemirilganda tabiat himoyasiz qoladi.

Uchinchi daraja tizimli ta'sirni ifodalaydi. Bu zararning temporal va transchegaraviy o'lchovi bo'lib, unga tuproq va suvdagi ifloslanishning o'nlab yillarga cho'zilishi, portlamagan o'q-dorilar tufayli hududlarning xo'jalik aylanmasidan uzoq muddatga chiqishi hamda ekologik zararning davlat chegaralaridan tashqariga tarqalishi kiradi. Ushbu darajaning eng paradoksal jihati qayta tiklash jarayonining o'zi ham sezilarli ekologik yuk keltirib chiqarishidir. Ukrainadagi mojaroning dastlabki uch yiliga oid hisob-kitoblarga ko'ra, jami 236,8 million tonna CO2-ekvivalent emissiya qayd etilgan bo'lib, uning eng yirik ulushlari harbiy harakatlarning o'ziga (34 foiz), keyingi qayta tiklash ishlariga (27 foiz) va landshaft yong'inlariga (21 foiz) to'g'ri keladi [25]. Boshqacha aytganda, mojaro tugagan taqdirda ham uning ekologik izi bir necha o'n yillar davomida shakllanishda davom etadi.

Ushbu model muhim nazariy natijaga olib keladi. Ekologik mas'uliyatning vaqt gorizonti harbiy harakatlarning vaqt gorizontidan sezilarli darajada uzunroq bo'ladi. Qaror bir lahzada qabul qilinadi, uning ekologik oqibati esa avlodlar davomida amal qiladi. Bu H.Jonas ta'riflagan an'anaviy etikaning temporal cheklanganligi muammosining harbiy-ekologik sohadagi aniq namunasidir [4].

### *3. Xalqaro-huquqiy normalarning falsafiy asoslari va bo'shliqlari*

Xalqaro-huquqiy hujjatlarning kontent-tahlili atrof-muhitni muhofaza qiluvchi normalarning asoslanish mantiqida izchil tendensiyani aniqlash imkonini berdi (2-jadval).

I Qo'shimcha bayonnomaning 35(3) va 55-moddalari tabiiy muhitga zarar yetkazishni taqiqlaydi, biroq 55-modda ushbu taqiqni aniq instrumental tarzda asoslaydi, chunki u aholining salomatligi va omon qolishiga tahdid soluvchi zararni nazarda tutadi [14]. Boshqacha aytganda, tabiat bu yerda mustaqil himoya obyekti emas, balki insonning yashash muhiti sifatida himoya qilinadi. ENMOD konvensiyasi atrof-muhitga ta'sir ko'rsatish usullarini harbiy vosita sifatida qo'llashni taqiqlash orqali boshqa yo'ldan boradi, ya'ni u tabiatni qurolga aylantirishni man etadi, lekin tabiatning o'z-o'zicha qadriyatini normativ jihatdan e'lon qilmaydi [15].

Xalqaro Huquq Komissiyasining PERAC tamoyillari (2022) mazkur yo'nalishdagi eng rivojlangan hujjat hisoblanadi. Uning konseptual yutug'i muhofaza rejimining temporal kengayishida namoyon bo'ladi, chunki tamoyillar mojarogacha, mojaro davrida, ishg'ol sharoitida va mojarodan keyin amal qiladi [17]. Bu falsafiy jihatdan Jonas imperativining huquqiy tilga o'girilishi sifatida talqin qilinishi mumkin, ya'ni mas'uliyat harakat momenti bilan cheklanmaydi. Shu bilan birga, hujjatning o'zida ham tabiatning

maqomi ochiq qoldirilgan. Normalar “amaldagi xalqaro huquqqa muvofiq” degan shart bilan cheklanadi va bu ularning odat huquqi maqomini nazariy jihatdan noaniq qoldiradi.

Mazkur normalarni amaliy qo‘llash bo‘yicha Xalqaro Qizil Xoch Qo‘mitasining 2020-yilgi ko‘rsatmalari [26] hamda BMTning Atrof-muhit dasturi (UNEP) tomonidan tayyorlangan xalqaro huquq normalarining tahliliy inventarizatsiyasi [27] muhim uslubiy manba hisoblanadi. Ularning tahlili shuni ko‘rsatadiki, mavjud normalar tizimi bo‘shliqni normalarning yetishmasligida emas, balki ularning asoslanish mantiqida saqlaydi.

Shunday qilib, tahlil quyidagi bo‘shliqni aniqladi. Xalqaro gumanitar huquqda tabiatni muhofaza qilishning rivojlangan normativ apparati mavjud, biroq bu apparat ostidagi falsafiy asos instrumental xarakterga ega. Bu esa amaliy oqibatga olib keladi, ya’ni himoya darajasi tabiatga yetkazilgan zararning ko‘lami bilan emas, balki uning insonga qanchalik tegishli ekanligi bilan o‘lchanadi.

*2-jadval.*

**Atrof-muhitni qurolli mojaro sharoitida muhofaza qiluvchi asosiy hujjatlar va ularning falsafiy asosi**

| Hujjat | Yil | Muhofaza predmeti | Asoslash mantiqi |
|---|---|---|---|
| Gaaga konvensiyasi (madaniy boyliklarni muhofaza qilish) | 1954 | Madaniy meros obyektlari | Sivilizatsion qadriyat asosi va urushni insonparvarlashtirish tamoyili |
| ENMOD konvensiyasi | 1976 | Atrof-muhitga ta’sir ko‘rsatish usullari | Vosita taqiqi, ya’ni tabiatni qurolga aylantirishning man etilishi |
| I Qo‘shimcha bayonnoma, 35(3)-modda | 1977 | Tabiiy muhit (keng ko‘lamli, uzoq muddatli, jiddiy zarar) | Vositalarni cheklash tamoyili |
| I Qo‘shimcha bayonnoma, 55-modda | 1977 | Aholining sog‘lig‘i va omon qolishi bilan bog‘liq muhit | Aniq instrumental, ya’ni inson orqali asoslash |
| Martens deklaratsiyasi (Gaaga konvensiyasi muqaddimasi) | 1899 va 1907 | Xalqaro shartnomada qamrab olinmagan holatlar | Insoniylik qonunlari va ijtimoiy ong talablari, ya’ni ochiq normativ formula |
| XHK PERAC tamoyillari | 2022 | Mojaroning barcha temporal bosqichlaridagi atrof-muhit | Aralash asos, ya’ni instrumental asos va temporal kengaytirilgan mas’uliyat |

***4. Ekologik barqarorlik va ekologik xavfsizlik uzviyligining modeli***

Tadqiqotning markaziy natijasi sifatida ikki tushuncha o‘rtasidagi uzviylikni uch darajada ifodalovchi model ishlab chiqildi (2-rasm).




*2-rasm. Ekologik barqarorlik va ekologik xavfsizlik uzviyligining uch darajali modeli (muallif ishlanmasi)*



Modelning boshlang‘ich nuqtasi yuqorida qayd etilgan mantiqiy ziddiyat hisoblanadi. Ekologik barqarorlik uzluksizlik va uzoq muddatlilik mantiqiga, ekologik xavfsizlik esa tahdid va favqulodda holat mantiqiga tayanadi. Ushbu ziddiyat, tadqiqot ko‘rsatishicha, tushunchalarning bir-birini istisno qilishini emas, balki ular o‘rtasida vositachi bo‘g‘in zarurligini bildiradi. Vositachi bo‘g‘in vazifasini mas’uliyat kategoriyasi bajaradi, chunki mas’uliyat ham uzluksiz (u doimiy amal qiladi), ham vaziyatli (u har bir aniq qarorga taalluqli) tabiatga ega.

Aksiologik daraja “nima uchun?” savoliga javob beradi va tabiatning o‘z-o‘zicha hamda instrumental qadriyatlari muvozanatini, mas’uliyatning avlodlararo kengayishini, ekologik ongning axloqiy asosini qamrab oladi. Bu darajada Jonas imperativi asosiy nazariy manba bo‘lib xizmat qiladi.

Normativ daraja “qanday qoida?” savoliga javob beradi va xalqaro gumanitar huquq normalarini, PERAC tamoyillarini hamda milliy qonunchilikni o‘z ichiga oladi. Milliy darajada bunga Konstitutsiyada ekologik huquqlarning mustaqil bob sifatida mustahkamlanishi misol bo‘ladi [2].

Institutsional daraja “kim va qanday amalga oshiradi?” savoliga javob beradi. Bu darajaga ekologik monitoring va zararni hisoblash mexanizmlari, harbiy ta’lim tizimida ekologik etika kursi, mintaqaviy suv va ekologiya diplomatiyasi hamda ishonch choralari, post-konflikt tiklash siyosati kiradi.

Uch darajaning izchil bog‘lanishi natijasida mas’uliyat markazli ekologik paradigma shakllanadi. Ushbu paradigmaning asosiy tezisi quyidagicha ifodalanadi. Tabiatga nisbatan majburiyatning kuchi tabiatning ontologik maqomidan emas, balki qarorning qaytarib bo‘lmaslik darajasi va uning oqibati amal qiladigan vaqt uzunligidan kelib chiqadi. Bu formula ikki muhim afzallikka ega. U antroposentrizm va ekotsentrizm o‘rtasidagi metafizik bahsni chetlab o‘tadi hamda amaliy qaror qabul qilish jarayoniga bevosita tatbiq etiladi.

## MUHOKAMA

Olingan natijalarni muhokama qilish tadqiqotning uch nazariy oqibatini ajratib ko‘rsatish imkonini beradi.

Birinchi oqibat mas’uliyat markazli paradigmaning izohlash ustunligi bilan bog‘liq. Yuqorida ko‘rsatilganidek, antroposentrik yondashuv aholisiz hududdagi ekologik zararni axloqiy jihatdan neytral deb baholash xavfini tug‘diradi, ekotsentrik yondashuv esa to‘qnashuv holatida ustuvorlik mezonini bermaydi. Mas’uliyat markazli paradigma bu ikki qiyinchilikni ham hal qiladi, chunki u baholash markazini obyektdan, ya’ni tabiatdan subyektga, ya’ni qaror qabul qiluvchiga ko‘chiradi. Bunda tabiatning qadriyat maqomi haqidagi metafizik savol ochiq qoldiriladi, lekin amaliy me’yor aniq shakllanadi. Ushbu yondashuv T.Meisels tomonidan asoslangan tamoyil bilan uyg‘unlashadi, unga ko‘ra ekologik tajovuzga javob choralarining o‘zi ham tabiatga nomutanosib zarar yetkazmasligi lozim [10]. Biroq undan farqli o‘laroq, mazkur ish mezon sifatida mutanosiblikni emas, balki qaytarib bo‘lmaslikni ilgari suradi. Mutanosiblik miqdoriy mezon bo‘lib, uni mojaro sharoitida real vaqtda hisoblash amalda mumkin emas. Qaytarib bo‘lmaslik esa sifat mezoni bo‘lib, u qaror qabul qilish momentida ham baholanishi mumkin.

Ikkinchi oqibat “ekologik Martens bandi” g‘oyasi bilan bog‘liq. Gaaga konvensiyasi muqaddimasidagi Martens deklaratsiyasi xalqaro shartnomalarda ko‘zda tutilmagan holatlarda ham himoya “tan olingan xalqaro odatlar, insoniylik qonunlari va ijtimoiy ong talablaridan” kelib chiquvchi tamoyillarga asoslanishini belgilaydi [16]. Ushbu formulaning nazariy qimmati uning ochiqligida namoyon bo‘ladi, chunki u huquqiy normani axloqiy asosga ulab turuvchi ko‘prik vazifasini bajaradi. Tadqiqot doirasida quyidagi g‘oya ilgari suriladi. “Ijtimoiy ong talablari” formulasi tarixan gumanitar mazmun bilan to‘ldirilgan bo‘lsa, zamonaviy sharoitda uning ekologik mazmun bilan boyitilishi mantiqiy asosga ega. Zero, tabiatni asrash bugungi kunda aynan ijtimoiy ongning barqaror talabiga aylandi va bu talab konstitutsiyaviy hamda xalqaro darajada mustahkamlanmoqda. Bunday talqin normativ bo‘shliqni to‘ldirishning eng iqtisodiy yo‘li hisoblanadi, chunki u yangi shartnoma yaratishni emas, balki mavjud formulaning izohlash doirasini kengaytirishni taklif qiladi. Ayni paytda ushbu g‘oyaning cheklovi ham e’tirof etilishi lozim. Martens bandi to‘g‘ridan-to‘g‘ri majburiyat manbai emas, balki izohlash tamoyili hisoblanadi va uning amaliy kuchi davlatlar amaliyoti bilan bog‘liq.

Uchinchi oqibat ekologik ongning temporal o‘lchoviga taalluqli. An’anaviy talqinda ekologik ong asosan bilim va munosabat kategoriyalari orqali ta’riflanadi, ya’ni inson tabiatni bilishi va unga ehtiyotkorona munosabatda bo‘lishi lozim deb qaraladi. Tadqiqot natijalari ushbu ta’rifga uchinchi tarkibiy qismni, ya’ni temporal tasavvurni qo‘shishni taqozo etadi. Ekologik jihatdan ongli subyekt deganda o‘z qarorining oqibati o‘zi ishtirok etmaydigan vaqt oralig‘ida qanday amal qilishini tasavvur qila oladigan subyekt tushuniladi. Ushbu qo‘shimcha ayniqsa harbiy-professional ta’lim uchun ahamiyatli, chunki harbiy qaror qabul qilish madaniyati tabiatan qisqa vaqt gorizontiga yo‘naltirilgan bo‘ladi.

Natijalarni mavjud tadqiqotlar bilan taqqoslash. Olingan xulosalar ekologiya falsafasining klassik yo‘nalishi bilan qisman muvofiq keladi. Jonasning temporal mas’uliyat g‘oyasi [4] ushbu tadqiqotning aksiologik darajasida to‘liq qabul qilinadi. Biroq mazkur ish Jonasdan farqli o‘laroq, mas’uliyatni texnologiya emas, balki qaror darajasida operatsionallashtiradi. Kopengagen maktabining sekyuritizatsiya nazariyasi [8] bilan taqqoslaganda esa printsipial farq kuzatiladi. Agar sekyuritizatsiya masalani favqulodda holat rejimiga o‘tkazishni ko‘zda tutsa, taklif etilayotgan model, aksincha, ekologik masalani favqulodda rejimdan chiqarib, uni doimiy institutsional amaliyotga aylantirishni nazarda tutadi. Mahalliy tadqiqotlar bilan solishtirilganda, jumladan X.Tursunov tomonidan tahlil qilingan ekologik boshqaruvning institutsional asoslari [24] va I.Ergashev tomonidan yoritilgan ekologik xavfsizlik masalalari [20] bilan taqqoslaganda, mazkur ish ularni to‘ldiradi. Agar mavjud tadqiqotlar institutsional darajada to‘plangan bo‘lsa, ushbu maqola shu institutlarning aksiologik asosini tahlil qiladi.

Mintaqaviy tatbiq. O‘zbekiston uchun tadqiqot natijalarining amaliy ahamiyati Markaziy Osiyoning suv va ekologiya sohasidagi o‘zaro bog‘liqligi bilan belgilanadi. Orol dengizining qurishi ekologik tizim yemirilishining harbiy bo‘lmagan yo‘l bilan yuzaga kelishi mumkinligini ko‘rsatdi [11]. Shu bilan birga u mintaqaviy hamkorlikning muqobili yo‘qligini ham namoyish etdi. Taklif etilayotgan modelning institutsional darajasi aynan shu tajribadan kelib chiqadi. Suv va ekologiya diplomatiyasi hamda ishonch choralari mintaqada ekologik omilning mojaro manbaiga aylanishining oldini oluvchi asosiy mexanizm hisoblanadi. “O‘zbekiston 2030” strategiyasida ekologik yo‘nalishning ustuvor deb belgilanishi [3] hamda Konstitutsiyada ekologik huquqlarning mustahkamlanishi [2] ushbu institutsional darajaning milliy huquqiy zaminini tashkil etadi.

Kelgusi tadqiqot yo‘nalishlari. Mazkur ish nazariy model taklif qilish bilan cheklanadi va uning empirik tekshirilishi alohida tadqiqot predmeti bo‘lishi lozim. Istiqbolli yo‘nalishlar sifatida quyidagilarni ko‘rsatish mumkin. Birinchidan, harbiy ta’lim tizimida ekologik etika bo‘yicha kursning mazmuni va samaradorligini o‘rganish. Ikkinchidan, ekologik ongning temporal o‘lchovini o‘lchash metodikasini ishlab chiqish. Uchinchidan, mintaqaviy suv va ekologiya sohasidagi ishonch choralarining institutsional dizaynini qiyosiy tahlil qilish. To‘rtinchidan, ekotsid tushunchasining milliy huquq tizimidagi maqomini nazariy asoslash.

## XULOSA

1) Ekologiya falsafasining klassik paradigmalari qurolli mojaro sharoitidagi ekologik buzilishni to‘liq izohlay olmaydi. Antroposentrik yondashuv zararni inson orqali baholagani bois aholisiz hududdagi buzilishga nisbatan sezgirligini yo‘qotadi, ekotsentrik yondashuv esa qadriyatlar to‘qnashuvida ustuvorlik mezonini bera olmaydi. Ikkala paradigmaning umumiy kamchiligi shundaki, ular tabiatga munosabatni holat sifatida ta’riflaydi, qaror sifatida emas.

2) Ekologik barqarorlik va ekologik xavfsizlik tushunchalari bir-birini istisno qilmaydi, balki mas’uliyat kategoriyasi vositasida uzviy bog‘lanadi. Ushbu uzviylik aksiologik, normativ va institutsional darajalarda amal qiladi va ularning izchil bog‘lanishi mas’uliyat markazli ekologik paradigmani shakllantiradi.

3) Xalqaro gumanitar huquqning atrof-muhitni muhofaza qiluvchi normalari asosan instrumental asosga tayanadi, ya’ni tabiat inson yashash muhiti sifatida himoya qilinadi. XHKning PERAC tamoyillari mas’uliyatning temporal kengayishi yo‘nalishida muhim qadam bo‘ldi, biroq tabiatning mustaqil normativ maqomi masalasi ochiq qolmoqda. Ushbu bo‘shliqni to‘ldirishning istiqbolli yo‘li Martens deklaratsiyasidagi “ijtimoiy ong talablari” formulasini eko-

logik mazmun bilan boyitishdan iborat.

4) Mojaro xavfi mavjud sharoitda ekologik ongni shakllantirish uch darajada samarali hisoblanadi. Individual darajada mas'uliyatning temporal o'lchovini, ya'ni qaror oqibatini uzoq vaqt gorizontida tasavvur qilish qobiliyatini rivojlantirish talab etiladi. Institutsional darajada harbiy va fuqarolik boshqaruv ta'limiga ekologik etika modulini kiritish hamda ekologik zararni hisoblash mexanizmlarini joriy etish zarur. Mintaqaviy darajada esa suv va ekologiya diplomatiyasi hamda ishonch choralari orqali ekologik omilning mojaro manbaiga aylanishining oldini olish lozim.

Umumiy xulosa sifatida quyidagini ta'kidlash mumkin. Ekologik barqarorlik nazariyasi qurolli mojaro hodisasini o'z predmet doirasiga kiritmaguncha nazariy jihatdan to'liq bo'lmaydi. Tabiatga nisbatan mas'uliyat haqidagi ta'limotning haqiqiy sinovi tinchlik sharoitidagi xo'jalik faoliyatida emas, balki aynan mas'uliyat eng oson unutiladigan holatda, ya'ni favqulodda vaziyat va mojaro sharoitida namoyon bo'ladi. Shu bois ekologik barqarorlik va ekologik xavfsizlikni yagona nazariy konstruksiyada birlashtirish zamonaviy ijtimoiy falsafaning dolzarb vazifalaridan biri hisoblanadi.

Tadqiqotning amaliy ahamiyati shundaki, uning natijalari harbiy va fuqarolik ta'limi tizimida ekologik etika bo'yicha o'quv modullarini ishlab chiqishda, ekologik xavfsizlik konsepsiyalarini takomillashtirishda hamda mintaqaviy ekologik hamkorlik dasturlarini asoslashda foydalanilishi mumkin.

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# ANALYSIS OF FACTORS AFFECTING THE VOLUME OF FOREIGN INVESTMENT IN UZBEKISTAN

**Abstract.** This study examines the major macroeconomic factors associated with the volume of foreign investment attracted to Uzbekistan, focusing on gross domestic product, foreign trade turnover, inflation, and population as the principal explanatory variables. The research employs a quantitative time-series approach based on official statistical data from the National Statistics Committee of the Republic of Uzbekistan and applies pairwise correlation and Ordinary Least Squares regression methods to evaluate the direction, strength, and statistical significance of the relationships among the selected variables. The empirical findings indicate that foreign investment is strongly associated with the expansion of economic activity, international trade, and domestic market capacity, while foreign trade turnover emerges as the most statistically significant determinant within the estimated regression model. Inflation demonstrates a negative but statistically insignificant relationship, whereas the effects of gross domestic product and population should be interpreted cautiously due to strong interrelationships among macroeconomic scale variables. Overall, the findings emphasize the importance of deeper international trade integration, macroeconomic stability, export-oriented investment policy, and improved trade and logistics infrastructure in strengthening Uzbekistan’s capacity to attract foreign investment.

**Key words:** foreign investment, foreign direct investment, gross domestic product, foreign trade turnover, inflation, population, investment attractiveness, econometric analysis.

## Introduction

Foreign investment has become an important component of economic development, particularly for emerging and transition economies seeking to accelerate structural transformation, expand productive capacity, and strengthen their integration into the global economy. Foreign capital can supplement limited domestic financial resources, facilitate technological upgrading, support industrial modernization, and contribute to the development of international production and trade linkages. However, the ability of an economy to attract foreign investment is not determined by a single factor. It reflects the interaction of market size, economic growth, trade openness, macroeconomic stability, industrial development, institutional conditions, and other country-specific characteristics. Consequently, identifying the macroeconomic determinants associated with foreign investment is important for both investment policy and long-term economic planning.

The relevance of examining foreign investment determinants has increased as developing economies compete for international capital while simultaneously facing greater uncertainty in global financial and commodity markets. Investors generally assess not only the current profitability of investment opportunities but also the size and growth of the host economy, its access to international markets, price stability, and future market potential. For Uzbekistan, this issue is particularly important because the country has implemented extensive economic reforms aimed at improving the investment environment, increasing openness to international markets, modernizing industries, and strengthening cooperation with foreign investors. Nevertheless, increasing the volume of foreign investment requires a clearer empirical understanding of which macroeconomic factors are most closely associated with investment dynamics.

Despite the growing importance of foreign capital in Uzbekistan's economic development, the relative importance of the macroeconomic factors associated with changes in foreign investment remains an empirical question. Economic expansion may create additional investment opportunities, while greater foreign trade activity may improve investors' access to international markets and strengthen the country's integration into global value chains. At the same time, inflation can represent macroeconomic uncertainty and affect investment decisions, whereas population growth may increase both domestic



market capacity and the availability of labour. These factors may also be strongly interconnected, making it difficult to identify their individual relationships with foreign investment without econometric analysis. Therefore, a systematic examination of official statistical data is necessary to determine the direction, strength, and statistical significance of the relationships between foreign investment and its major macroeconomic determinants in Uzbekistan.

Uzbekistan provides a particularly relevant setting for such analysis because its economy has undergone substantial changes in economic openness, external trade, investment policy, industrial development, and market-oriented reforms. The volume of foreign direct investment and foreign loans directed to fixed assets has also changed considerably over time. At the same time, GDP, foreign trade turnover, population, and other macroeconomic indicators have followed strong development trends. These simultaneous changes raise an important empirical issue: whether the growth of foreign investment is systematically associated with changes in the country's fundamental macroeconomic conditions and, if so, which factors provide the strongest statistical explanation of investment dynamics.

Although foreign investment in Uzbekistan has been widely discussed from the perspectives of investment climate, legal reforms, sectoral develop-

ment, and investment attractiveness, there remains a need for quantitative research integrating several major macroeconomic determinants within a unified econometric framework. In particular, the relationships between foreign investment, GDP, foreign trade turnover, inflation, and population require simultaneous examination because simple descriptive comparisons cannot distinguish the relative contribution of each factor. This study addresses this issue by combining correlation and multiple regression analysis using official annual statistical data for 2010–2025, thereby providing an empirical basis for identifying the factors most closely associated with foreign investment in Uzbekistan.

Research aim. This study aims to empirically analyse the major macroeconomic factors associated with the volume of foreign investment attracted to Uzbekistan. The analysis focuses on foreign direct investment and foreign loans directed to fixed assets as the dependent variable and examines four principal determinants: gross domestic product, foreign trade turnover, inflation, and population. Using official annual statistical data for 2010–2025, correlation and multiple regression methods are applied to estimate the direction, strength, and statistical significance of these relationships and to develop an econometric model that can serve as a basis for further analysis and forecasting.

Building on the research problem and research aim, the following research questions were formulated:

RQ1: To what extent is economic growth, represented by gross domestic product, associated with the volume of foreign investment attracted to Uzbekistan?

RQ2: What role does foreign trade turnover play in explaining changes in the volume of foreign investment attracted to Uzbekistan?

RQ3: To what extent is inflation associated with foreign investment dynamics in Uzbekistan?

RQ4: How is population, as an indicator of domestic market and labour-market capacity, associated with the volume of foreign investment attracted to Uzbekistan?

Research objectives

– to empirically estimate the relationship between gross domestic product and the volume of foreign investment attracted to Uzbekistan;

– to examine the role of foreign trade turnover in explaining changes in foreign investment;

– to assess the relationship between inflation and foreign investment dynamics;

– to determine the relationship between population size and the volume of foreign investment;

– to apply correlation and multiple regression analysis to identify the statistically significant determinants of foreign investment and develop an econometric model based on official statistical data for 2010–2025.

## Literature review

Foreign investment decisions are shaped by a combination of market, macroeconomic, trade, institutional, and structural conditions in the host economy. From the perspective of multinational enterprises, investment location is not determined solely by the availability of capital or production resources; it also depends on the size and growth potential of the domestic market, access to international markets, macroeconomic stability, and the capacity of the host economy to support long-term business operations. Theoretical explanations of foreign direct investment (FDI), particularly the location component of Dunning's eclectic paradigm, suggest that multinational firms are more likely to invest in economies that provide location-specific advantages such as large markets, favourable economic conditions, access to resources, and integration into international trade (Dunning, 1988).

Empirical studies broadly support this multidimensional view. For transition economies, Bevan and Estrin (2004) found that host-country market size was among the important determinants of FDI, alongside labour costs and geographical factors. Their findings are particularly relevant for economies undergoing structural transformation because they demonstrate that expanding domestic markets can improve the attractiveness of transition countries to foreign investors.[1] Similarly, Bevan, Estrin, and Meyer (2004) showed that foreign investment in transition economies is influenced by the development of formal institutions, including private ownership, banking reforms, trade and foreign-exchange liberalisation, and legal development.[2]

Recent research further demonstrates that the

1 Bevan A. A., Estrin S. The determinants of foreign direct investment into European transition economies //Journal of comparative economics. – 2004. – T. 32. – №. 4. – C. 775-787.

2 Bevan A., Estrin S., Meyer K. Foreign investment location and institutional development in transition economies //International business review.

influence of individual macroeconomic variables is not necessarily uniform across countries. For example, a study of five Southeast Asian economies found significant relationships between FDI and GDP, inflation, interest rates, trade openness, and geopolitical risk, although the direction of some effects differed from conventional theoretical expectations (2024).[3] This heterogeneity makes country-specific investigation necessary rather than assuming that determinants established for developed or other emerging economies automatically apply to Uzbekistan.

The issue has become increasingly relevant for Uzbekistan as the country has pursued greater economic openness and sought to expand international investment cooperation. Existing Uzbekistan-specific studies have examined the relationships between FDI and economic development as well as macroeconomic determinants. Oblomuradov and Jumaev (2024), for instance, developed an econometric model incorporating GDP growth, industrial production, exports, and newly established enterprises as potential determinants of FDI in Uzbekistan. Azimov (2025) subsequently examined FDI in Uzbekistan using GDP, inflation, and interest rates within a log-linear OLS framework.[4]

Building on this literature, the present study focuses on four macroeconomic variables included in the empirical model: gross domestic product (GDP), foreign trade turnover, inflation, and population. The dependent variable is the volume of foreign direct investment and foreign loans directed to fixed assets in Uzbekistan. The following subsections review the theoretical and empirical arguments underlying each relationship and formulate four testable hypotheses.

Market size is one of the most frequently identified determinants of foreign investment. A larger economy provides foreign firms with access to a broader consumer base, greater demand, more extensive production opportunities, and potentially stronger prospects for achieving economies of scale. Market-seeking multinational enterprises may therefore prefer economies in which GDP is relatively high or expanding rapidly. In this context, GDP represents not only the current size of the economy but also its capacity to generate demand and support profitable long-term investment projects.

Evidence from transition economies supports this argument. Bevan and Estrin (2004) examined bilateral FDI flows from developed Western economies to Central and Eastern European transition economies and identified host-country market size as one of the important influences on foreign investment. Their empirical results indicated that FDI was positively related to host-country GDP, supporting the proposition that larger transition economies provide stronger location advantages to international investors.[5] This relationship is particularly relevant to Uzbekistan because, like the economies considered in their study, it has experienced substantial market-oriented structural transformation.

Evidence from other emerging economies also confirms the relevance of market size. Research examining the determinants of FDI in China identified GDP, trade openness, labour costs, economic policy uncertainty, and the real exchange rate among the principal factors associated with foreign investment.[6] In the Uzbekistan context, Oblomuradov and Jumaev (2024) similarly included GDP growth among the principal macroeconomic indicators in their econometric assessment of FDI determinants. Azimov (2025) also incorporated GDP into a log-linear model of FDI inflows in Uzbekistan, further demonstrating the importance attached to market size in country-specific empirical research.

For Uzbekistan, continued economic expansion can increase the expected profitability of foreign investment by enlarging domestic demand and creating new opportunities in manufacturing, infrastructure, services, and other sectors. A growing economy may also signal greater capacity to absorb foreign capital. On this basis, a positive relationship between GDP and foreign investment is theoretically expected.

International trade and foreign investment are closely connected dimensions of economic integration. Greater trade activity can make a host economy more attractive to foreign investors by reducing eco-

– 2004. – Т. 13. – №. 1. – С. 43-64.

3 Hossain M. S. et al. Impact of geopolitical risk, GDP, inflation, interest rate, and trade openness on foreign direct investment: Evidence from five Southeast Asian countries //Regional Sustainability. – 2024. – Т. 5. – №. 4. – С. 100177.

4 Shakhzod A. Research on the effects of interest rate, inflation rate and gross domestic product (GDP) on the level of foreign direct investment (FDI) inflows (evidence from Uzbekistan) //GREEN ECONOMY AND DEVELOPMENT. – 2025. – Т. 3. – №. 4.

5 Bevan A. A., Estrin S. The determinants of foreign direct investment into European transition economies //Journal of comparative economics. – 2004. – Т. 32. – №. 4. – С. 775-787.

6 Saleem H. et al. Reexamining the determinants of foreign direct investment in China //Transnational Corporations Review. – 2018. – Т. 10. – №. 1. – С. 53-68.

nomic isolation, expanding access to international markets, strengthening global production linkages, and improving opportunities for importing intermediate inputs and exporting finished products. For export-oriented multinational enterprises in particular, integration into international trade networks can influence the attractiveness of a potential investment location.

The relationship between trade openness and foreign investment is well established in the broader FDI literature, although its direction can vary depending on the type of investment and economic structure. Foreign investors pursuing export-oriented strategies generally benefit from economies with fewer trade barriers and stronger international commercial connections. Bevan, Estrin, and Meyer (2004) found that foreign-exchange and trade liberalisation formed part of the institutional reforms positively associated with foreign investment in transition economies.[7] Evidence from China also identifies trade openness as one of the major variables explaining FDI dynamics.[8] More recent provincial evidence from China finds trade openness to be among the most robust positive determinants of FDI intensity.[9]

However, empirical evidence is not completely uniform. A 2024 study covering five Southeast Asian economies found that trade openness had a negative estimated effect on FDI under its particular model specification, despite identifying a long-run relationship among FDI, GDP, inflation, interest rates, geopolitical risk, and trade openness.[10] Such findings suggest that the trade–FDI relationship can depend on the structure of the host economy, the motivation of investors, and the methodology employed.

In Uzbekistan, foreign trade turnover is particularly relevant because greater export and import activity reflects deeper integration with external markets. Expanding trade can provide foreign investors with access to imported technology and intermediate goods while simultaneously creating opportunities to serve regional and international markets from production facilities located in Uzbekistan. Previous Uzbekistan-specific econometric research has also incorporated export indicators among the determinants of foreign investment (Oblomuradov & Jumaev, 2024). Therefore, the present study expects foreign trade turnover to be positively associated with foreign investment.

Macroeconomic stability is another important consideration in foreign investment decisions. Unlike short-term portfolio capital, direct investment frequently involves long planning horizons and substantial fixed costs. Investors therefore need to form expectations about future operating costs, demand, revenues, and the real value of investment returns. High or unpredictable inflation can make these calculations more difficult by increasing uncertainty regarding prices and production costs.

From this perspective, inflation is commonly treated as an indicator of macroeconomic instability. Persistent price increases may increase uncertainty and weaken the predictability of the business environment, potentially discouraging long-term investment. However, the empirical relationship is not always straightforward. Moderate inflation can accompany rapid economic growth and expanding demand, meaning that the observed relationship between inflation and FDI may depend on the broader macroeconomic context.

Recent empirical evidence illustrates this ambiguity. The 2024 study of five Southeast Asian economies found a positive relationship between inflation and FDI within its sample, demonstrating that the effect need not always follow the theoretically expected negative direction.[11] For Uzbekistan specifically, Azimov (2025) examined inflation together with GDP and interest rates as macroeconomic determinants of FDI using a log-linear OLS specification, confirming the relevance of price stability as an empirical variable in explaining investment flows.[12]

For the present study, inflation is treated primarily as a proxy for macroeconomic stability. Other things being equal, lower and more predictable inflation is expected to reduce uncertainty surrounding in-

7 Bevan A., Estrin S., Meyer K. Foreign investment location and institutional development in transition economies //International business review. – 2004. – T. 13. – №. 1. – C. 43-64.

8 Saleem H. et al. Reexamining the determinants of foreign direct investment in China //Transnational Corporations Review. – 2018. – T. 10. – №. 1. – C. 53-68.

9 ul Abidin R. Z. et al. Do Trade Openness, Digital Technology, and Governance Quality Attract FDI? A Provincial Panel Analysis from China // Development and Sustainability in Economics and Finance. – 2026. – C. 100141.

10 Hossain M. S. et al. Impact of geopolitical risk, GDP, inflation, interest rate, and trade openness on foreign direct investment: Evidence from five Southeast Asian countries //Regional Sustainability. – 2024. – T. 5. – №. 4. – C. 100177.

11 Hossain M. S. et al. Impact of geopolitical risk, GDP, inflation, interest rate, and trade openness on foreign direct investment: Evidence from five Southeast Asian countries //Regional Sustainability. – 2024. – T. 5. – №. 4. – C. 100177.

12 Shakhzod A. Research on the effects of interest rate, inflation rate and gross domestic product (GDP) on the level of foreign direct investment (FDI) inflows (evidence from Uzbekistan) //GREEN ECONOMY AND DEVELOPMENT. – 2025. – T. 3. – №. 4.

vestment decisions, whereas higher inflation can increase the difficulty of long-term financial planning. Consequently, the theoretically expected relationship between inflation and foreign investment in Uzbekistan is negative.

Population represents another potential location advantage because it reflects both the scale of the domestic consumer market and the potential size of the labour force. For market-seeking investors, a larger population can create greater demand for goods and services, while for efficiency- and production-oriented investors it can provide a broader labour pool. Population therefore complements GDP as an indicator of market potential, although the two variables capture different dimensions of the host economy.

The importance of market-related characteristics is consistent with the broader FDI literature. Bevan and Estrin (2004) showed that the size of the host economy significantly influenced foreign investment location in European transition economies.[13] Theoretically, this market-size mechanism can operate through both purchasing power and the number of potential consumers. For developing countries, population growth may additionally increase demand for infrastructure, housing, transport, energy, consumer goods, and services, thereby creating investment opportunities across a wide range of economic activities.

In Uzbekistan, population is especially relevant because foreign investors may view domestic market capacity alongside GDP and international market access when making location decisions. A larger population can support the expansion of domestic demand and provide human resources for new production activities. Nevertheless, population alone does not guarantee greater foreign investment: its influence also depends on productivity, purchasing power, human capital, infrastructure, and institutional quality. Accordingly, population is incorporated into the model as a structural measure of market and labour capacity, with an expected positive relationship with foreign investment.

Foreign investment is the outcome variable of the empirical model and represents the extent to which external financial resources are channelled into productive assets within Uzbekistan. In the broader literature, FDI is distinguished from short-term capital movements because it generally involves a lasting investment relationship and a strategic interest in productive activity. For transition and developing economies, such investment can contribute not only financial capital but also technological knowledge, managerial practices, international market connections, and participation in global production networks.

The importance of FDI has consequently made its determinants a central issue in international economics. The literature suggests that no single variable explains investment location. Instead, foreign investment reflects an interaction between market size, trade integration, macroeconomic stability, institutional development, production costs, infrastructure, and other location-specific advantages. Bevan and Estrin (2004) emphasize market size and cost-related factors in transition economies, while Bevan, Estrin, and Meyer (2004) demonstrate the importance of institutional development and liberalisation. More recent studies extend this framework by considering geopolitical risk, trade openness, technological development, and other dimensions of the investment environment.[14]

For Uzbekistan, recent empirical work has begun to investigate these relationships more systematically. Khaydarova and Ismailova analyse FDI and Uzbekistan's economic development over 2004–2023 using OLS and VAR techniques.[15] Oblomuradov and Jumaev (2024) investigate determinants including GDP growth, industrial production and exports, while Azimov (2025) focuses on GDP, inflation and interest rates. These studies provide an important foundation, but differences in variables, periods, and econometric specifications leave room for further investigation of how market size, trade activity, macroeconomic stability, and demographic capacity jointly relate to foreign investment.

The continued importance of this question is reinforced by global investment trends. UNCTAD's World Investment Report 2025 highlights continuing uncertainty in international investment and the challenges facing developing economies in attracting productive international capital. UNCTAD's country-level investment statistics also provide dedicated FDI information for Uzbekistan. Against this back-

13 Bevan A. A., Estrin S. The determinants of foreign direct investment into European transition economies //Journal of comparative economics. – 2004. – Т. 32. – №. 4. – С. 775-787.

14 Hossain M. S. et al. Impact of geopolitical risk, GDP, inflation, interest rate, and trade openness on foreign direct investment: Evidence from five Southeast Asian countries //Regional Sustainability. – 2024. – Т. 5. – №. 4. – С. 100177.

15 Shakhlo K., Nilufar I. Assessing the impact of foreign direct investment on Uzbekistan's economic development: an empirical analysis (2004–2023) //Economics and Innovative Technologies. – 2025. – Т. 13. – №. 1. – С. 51-64.

ground, identifying the domestic macroeconomic conditions most strongly associated with foreign investment is particularly relevant for Uzbekistan's investment and development policy.

Based on the theoretical arguments and empirical literature reviewed above, the following hypotheses are formulated:

H1: Gross domestic product has a positive effect on the volume of foreign investment attracted to Uzbekistan.

H2: Foreign trade turnover has a positive effect on the volume of foreign investment attracted to Uzbekistan.

H3: Inflation has a negative effect on the volume of foreign investment attracted to Uzbekistan.

H4: Population has a positive effect on the volume of foreign investment attracted to Uzbekistan.

## Methods

*Research approach and design*

This study adopts a quantitative empirical approach to investigate the macroeconomic factors associated with the volume of foreign investment attracted to Uzbekistan. The research is hypothesis-driven and tests four hypotheses (H1–H4) developed from the theoretical and empirical literature on foreign investment determinants. Four macroeconomic factors—gross domestic product (GDP), foreign trade turnover, inflation, and population—are examined as explanatory variables, while foreign direct investment and foreign loans directed to fixed assets are used as the dependent variable. The research design is based on annual time-series data for Uzbekistan and seeks to determine the direction, magnitude, and statistical significance of the relationships between foreign investment and the selected macroeconomic factors.

The choice of the empirical approach follows directly from the structure of the available data and the objective of the study. Annual observations covering the period from 2010 to 2025 provide a consistent sixteen-year time series that captures substantial changes in Uzbekistan's economy, including the expansion of economic activity, increased international trade, changes in price dynamics, population growth, and the rapid increase in foreign capital directed to fixed assets. Unlike a cross-sectional approach, the time-series design makes it possible to examine how changes in the macroeconomic environment are associated with changes in foreign investment over time. Multiple regression analysis is employed because it enables the relationship between each explanatory factor and foreign investment to be estimated while holding the other included variables constant.

The empirical strategy proceeds from correlation analysis to multivariate regression estimation. Pairwise correlation coefficients are first calculated to identify the strength and direction of associations among the variables and to detect potentially high correlations among the explanatory factors. The hypotheses are then tested using an Ordinary Least Squares (OLS) regression model. Since GDP, foreign trade turnover, population, and the foreign investment measure differ substantially in their original scales and exhibit strong upward trends, the principal scale variables are transformed into natural logarithms. Inflation enters the model in percentage terms. This specification also allows the coefficients of log-transformed variables to be interpreted in elasticity terms where appropriate.

*Data and sample*

The dataset was compiled primarily from official statistical information published through the Statistics Agency of the Republic of Uzbekistan / National Statistics Committee's SIAT statistical database. The study covers the period 2010–2025, resulting in 16 annual observations for the baseline econometric model. The selected period provides a consistent data window for the dependent variable and the four principal explanatory variables and encompasses important stages of Uzbekistan's economic transformation and increasing integration into international markets.

The dependent variable is the volume of investments in fixed assets financed through foreign direct investment and foreign loans. The indicator is reported in million UZS in the official statistical database and is converted into billion UZS before logarithmic transformation to ensure greater comparability with GDP. It should be noted that this indicator represents foreign direct investment and foreign loans used to finance fixed assets and therefore should not be interpreted as identical to the Balance-of-Payments concept of net FDI inflows.

The explanatory variables comprise GDP, foreign trade turnover, inflation, and permanent population. GDP is measured at current prices in billion UZS and represents the size and economic capacity of the domestic market. Foreign trade turnover is reported in million USD and reflects Uzbekistan's degree of external commercial activity and integration with inter-

national markets. Inflation is derived from the annual Consumer Price Index (CPI), calculated as the annual CPI index minus 100, and is expressed as a percentage. Permanent population is measured in thousand persons and represents the scale of the domestic market and potential labour supply.

For the baseline analysis, observations are available for all four explanatory variables throughout 2010–2025; therefore, no interpolation or imputation procedure is required. Industrial production was additionally considered during the preliminary analysis as an alternative indicator of productive capacity. However, it was not included in the baseline regression because the official annual series used in the study was available only through 2024 and because preliminary correlation analysis revealed an extremely strong relationship between industrial production and other scale variables, particularly GDP and population. Excluding this variable therefore preserves the common 2010–2025 estimation sample and reduces additional multicollinearity in the baseline specification.

*Variables*

Table 1 presents the variables employed in the empirical analysis, together with their measurement units, data sources, and transformations applied before econometric estimation. The selection of variables is based on the theoretical and empirical literature concerning the macroeconomic determinants of foreign investment and is consistent with the hypotheses developed in the previous section. The model contains one dependent variable (fdi_fl) and four explanatory variables (gdp, trade, infl, and pop). All indicators are obtained from the official SIAT database of the National Statistics Committee of the Republic of Uzbekistan, ensuring consistency and comparability of the annual data over the 2010–2025 study period. Because the variables are originally reported in different units and exhibit substantially different scales, appropriate transformations are applied before correlation and regression analyses.

Table 1

Variable description and sources

| Variable | Type | Measurement | Source | Transformation |
|---|---|---|---|---|
| **fdi_fl** | DV | Million UZS | SIAT / National statistics committee | Converted to billion UZS, natural log |
| **gdp** | IV | Billion UZS | SIAT / National statistics committee | Natural log |
| **trade** | IV | Million USD | SIAT / National statistics committee | Natural log |
| **infl** | IV | Percent | SIAT / National statistics committee | CPI – 100 |
| **pop** | IV | Thousand persons | SIAT / National statistics committee | Natural log |

As shown in Table 1, fdi_fl, measured as investments in fixed assets financed through foreign direct investment and foreign loans, serves as the dependent variable and is converted from million to billion UZS before natural-log transformation. GDP (gdp) is measured in billion UZS, foreign trade turnover (trade) in million USD, and permanent population (pop) in thousand persons; all three variables are transformed into natural logarithms to reduce scale differences and facilitate elasticity-based interpretation of the regression coefficients. Inflation (infl) is expressed as a percentage and is calculated by subtracting 100 from the annual Consumer Price Index (CPI), so it is retained in percentage form rather than log-transformed. Overall, these transformations produce a more comparable set of variables for econometric estimation and allow the model to evaluate how changes in market size, international trade activity, macroeconomic stability, and demographic capacity are associated with foreign investment in Uzbekistan.

The dataset presented in the table was selected to empirically examine the macroeconomic factors associated with the volume of foreign investment in Uzbekistan. It includes the dependent variable—foreign direct investment and foreign loans directed to fixed assets (FDI + foreign loans)—and five potential explanatory indicators: gross domestic product (GDP), foreign trade turnover, Consumer Price Index (CPI), inflation rate, permanent population, and industrial production. The monetary indicators are reported in their official measurement units, while the inflation rate is derived from the CPI as CPI – 100. These indicators capture key dimensions of the investment environment, including market size, external economic activity, macroeconomic stability, demographic capacity, and industrial development. The selected data therefore provide the quantitative

basis for subsequent correlation and regression analyses aimed at identifying the factors most closely associated with foreign investment dynamics in Uzbekistan.

**Table 2**

**Macroeconomic indicators used in the empirical analysis of foreign investment in uzbekistan**

| Year | Y: FDI + foreign loans in fixed assets (mln UZS) | Y: FDI + foreign loans (bln UZS) | X1: GDP, current prices (bln UZS) | X2: Foreign trade turnover (mln USD) | CPI index (Dec/Dec, %) | X3: Inflation rate (%) | X4: Permanent population (thousand) | X5: Industrial production (bln UZS) |
|---|---|---|---|---|---|---|---|---|
| 2010 | 3 778 261,6 | 3 778,3 | 88 102,4 | 22 199,2 | 107,34 | 7,34 | 28001,40 | 38119,00 |
| 2011 | 3 215 224,3 | 3 215,2 | 115 627,8 | 26 365,9 | 107,64 | 7,64 | 29123,40 | 47587,10 |
| 2012 | 3 668 629,9 | 3 668,6 | 142 333,0 | 26 416,1 | 107,00 | 7,00 | 29555,40 | 57552,50 |
| 2013 | 4 315 482,0 | 4 315,5 | 173 201,5 | 28 269,6 | 106,80 | 6,80 | 29993,50 | 70634,80 |
| 2014 | 5 489 378,2 | 5 489,4 | 210 998,3 | 27 530,1 | 106,13 | 6,13 | 30492,80 | 84011,60 |
| 2015 | 6 133 079,7 | 6 133,1 | 250 544,6 | 24 924,3 | 105,60 | 5,60 | 31022,50 | 97598,20 |
| 2016 | 7 353 721,4 | 7 353,7 | 290 213,4 | 24 232,2 | 105,70 | 5,70 | 31575,30 | 111869,40 |
| 2017 | 12 768 574,6 | 12 768,6 | 369 612,8 | 26 566,1 | 114,40 | 14,40 | 32120,50 | 148816,00 |
| 2018 | 13 053 017,4 | 13 053,0 | 494 814,8 | 33 430,0 | 114,30 | 14,30 | 32656,70 | 235340,70 |
| 2019 | 57 563 951,9 | 57 564,0 | 620 083,2 | 41 751,0 | 115,20 | 15,20 | 33255,50 | 322535,80 |
| 2020 | 66 537 000,6 | 66 537,0 | 705 076,5 | 36 256,1 | 111,10 | 11,10 | 33905,20 | 368740,20 |
| 2021 | 83 242 452,7 | 83 242,5 | 861 170,8 | 42 170,5 | 110,00 | 10,00 | 34558,90 | 456056,10 |
| 2022 | 98 827 297,9 | 98 827,3 | 1 041 877,9 | 50 500,3 | 112,30 | 12,30 | 35271,30 | 553265,00 |
| 2023 | 179 300 694,9 | 179 300,7 | 1 261 806,0 | 63 528,6 | 108,80 | 8,80 | 36024,90 | 658991,70 |
| 2024 | 327 637 656,5 | 327 637,7 | 1 535 431,7 | 67 238,4 | 109,80 | 9,80 | 36799,80 | 880198,50 |
| 2025 | 400 814 327,1 | 400 814,3 | 1 849 650,0 | 82 763,5 | 107,30 | 7,30 | 37543,20 | |

The data also reveal substantial changes in Uzbekistan's macroeconomic conditions over the observed period. Foreign investment and foreign loans directed to fixed assets increased from 3,778.3 billion UZS in 2010 to 12,768.6 billion UZS in 2017, while GDP rose from 88,102.4 billion UZS to 369,612.8 billion UZS over the same period. Foreign trade turnover fluctuated rather than increasing continuously, reaching 26,566.1 million USD in 2017, whereas permanent population showed a stable upward trend from 28.0 million to 32.1 million people. Industrial production also expanded considerably, from 38,119.0 billion UZS in 2010 to 148,816.0 billion UZS in 2017. Inflation remained relatively moderate during 2010–2016 but increased sharply to 14.4% in 2017. Overall, the variables display different patterns of growth and fluctuation, making the dataset suitable for examining the strength, direction, and statistical significance of the relationships between foreign investment and the selected macroeconomic factors.

*Research model*

The conceptual research model examines the relationship between four macroeconomic determinants and the volume of foreign investment attracted to Uzbekistan. Figure 1 presents the conceptual research model developed to examine the major macroeconomic factors influencing foreign investment in Uzbekistan. The model is constructed in accordance with the theoretical arguments and hypotheses developed in the literature review and establishes direct relationships between four independent variables—gross domestic product (GDP), foreign trade turnover, inflation, and population—and the dependent variable, foreign investment (FDI_FL). Each explanatory variable represents a distinct dimension of the host economy, including market size, international economic integration, macroeconomic stability, and demographic capacity. The model therefore provides a structured framework for empirically assessing the determinants of foreign investment in Uzbekistan during the study period.

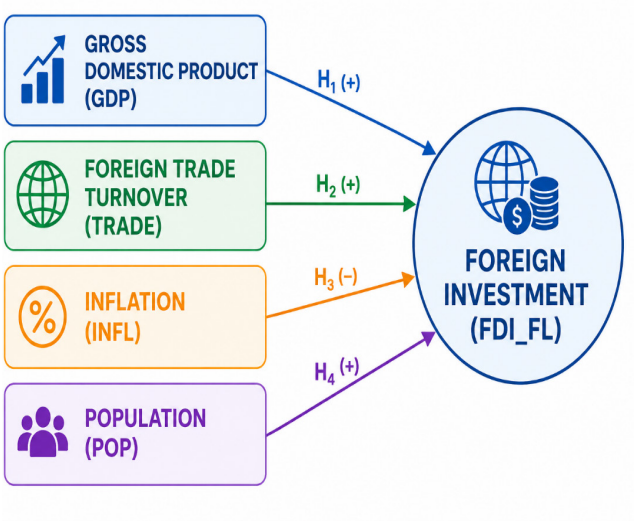



**Figure 1. Research model of macroeconomic determinants of foreign investment in Uzbekistan.**

As illustrated in Figure 1, GDP is expected to have a positive effect on foreign investment (H1+), since economic expansion can increase market opportunities and the potential profitability of investment projects. Foreign trade turnover is also hypothesized to positively affect foreign investment (H2+), reflecting the importance of international market integration, export opportunities, and access to imported inputs. In contrast, inflation is expected to have a negative effect (H3−), as higher price instability may increase uncertainty and reduce the predictability of long-term investment returns. Population is hypothesized to have a positive effect (H4+) because a larger population may increase domestic market capacity and expand the potential labour supply available to foreign investors. Accordingly, the research model integrates these four macroeconomic determinants within a single analytical framework, which is subsequently tested through correlation and multiple regression analysis to determine the direction, magnitude, and statistical significance of their relationships with foreign investment in Uzbekistan.

*Model specification*

This section specifies the econometric model used to test the research hypotheses. The empirical analysis employs annual time-series data for Uzbekistan covering 2010–2025. The baseline specification examines the relationship between foreign investment and four explanatory variables: GDP, foreign trade turnover, inflation, and population. Natural logarithmic transformations are applied to foreign investment, GDP, foreign trade turnover, and population, while inflation is retained in percentage form. The general econometric specification is expressed as:

$$Ln_{fdi_fl_t} = \beta_0 + \beta_1 \ln_gdp_t + \beta_2 \ln_trade_t + \beta_3 \ln_infl_t + \beta_4 \ln_pop_t + E_t$$

where t denotes year (t = 2010, 2011, ..., 2025); ln_fdi_fl is the natural logarithm of investment in fixed assets financed through foreign direct investment and foreign loans; ln_gdp is the natural logarithm of GDP; ln_trade is the natural logarithm of foreign trade turnover; infl denotes the annual inflation rate; and ln_pop represents the natural logarithm of permanent population. $\beta_0$ is the constant term, $\beta_1$–$\beta_4$ are the parameters to be estimated, and $\varepsilon_t$ represents the error term.

*Data reliability and ethical considerations*

The study relies exclusively on secondary macroeconomic data obtained from official statistical sources and therefore does not involve human participants, personal information, surveys, interviews, or experimental interventions. The primary statistical series were obtained from Uzbekistan's official SIAT database, and variable definitions and measurement units were checked before constructing the econometric dataset. No artificial observations were generated for the baseline model, and no missing-value interpolation was required for the variables included in the 2010–2025 regression sample. Particular attention was given to preserving the original statistical meaning of the dependent variable; consequently, throughout the empirical analysis it is defined as investment in fixed assets financed through foreign direct investment and foreign loans rather than being presented as a pure measure of net FDI inflows. This distinction improves the transparency, reproducibility, and validity of the empirical analysis.

## Analysis and results

To empirically examine the major factors associated with the volume of foreign investment attracted to Uzbekistan, correlation and regression analyses were conducted using official statistical data for the period 2010–2025. The empirical analysis focuses on foreign direct investment and foreign loans directed to fixed assets as the dependent variable, while gross domestic product, foreign trade turnover, inflation, and population are considered the principal macroeconomic explanatory factors. First, Pearson pairwise correlation analysis was employed to identify the direction and strength of the relationships between foreign investment and the selected variables, as

well as to detect potentially strong interrelationships among the explanatory variables. Subsequently, multiple regression analysis using the Ordinary Least Squares (OLS) method was applied to estimate the magnitude and statistical significance of the association between each determinant and foreign investment while controlling for the other factors included in the model. Together, these methods provide an empirical basis for identifying the most relevant determinants of foreign investment in Uzbekistan, constructing the econometric model, and supporting subsequent forecasting analysis.

The bivariate relationships between foreign investment and the selected macroeconomic determinants are examined using a pairwise Pearson correlation matrix. The results show that the logarithm of foreign direct investment and foreign loans directed to fixed assets (ln_fdi_fl) is strongly and positively correlated with most of the scale-related explanatory variables. The strongest relationship is observed with industrial production (ln_ind, r = 0.976, p < 0.01), followed by GDP (ln_gdp, r = 0.970, p < 0.01), population (ln_pop, r = 0.969, p < 0.01), and foreign trade turnover (ln_trade, r = 0.952, p < 0.01). These results indicate that the expansion of economic activity, industrial capacity, market size, and external trade is closely associated with increasing volumes of foreign investment and foreign loans in Uzbekistan. In contrast, inflation (infl, r = 0.360, p > 0.10) demonstrates a considerably weaker and statistically insignificant bivariate relationship with the dependent variable.

**Table 3**

**Pairwise correlations**

| Variables | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| **(1) ln_fdi_fl** | 1.000 | | | | | |
| **(2) ln_gdp** | 0.970*** | 1.000 | | | | |
| **(3) ln_trade** | 0.952*** | 0.917*** | 1.000 | | | |
| **(4) infl** | 0.360 | 0.409 | 0.245 | 1.000 | | |
| **(5) ln_pop** | 0.969*** | 0.998*** | 0.926*** | 0.363 | 1.000 | |
| **(6) ln_ind** | 0.976*** | 0.997*** | 0.922*** | 0.544** | 0.993*** | 1.000 |

Regarding the relationships among the explanatory variables, several particularly high correlations are observed. GDP is strongly correlated with population (r = 0.998, p < 0.01) and industrial production (r = 0.997, p < 0.01), while population and industrial production are also highly correlated (r = 0.993, p < 0.01). Foreign trade turnover is positively correlated with GDP (r = 0.917), population (r = 0.926), and industrial production (r = 0.922), with all three relationships statistically significant at the 1% level. Inflation generally has weaker relationships with the explanatory variables, although its correlation with industrial production is moderate and statistically significant (r = 0.544, p < 0.05). Importantly, correlations exceeding 0.90 among several explanatory variables indicate a potentially serious multicollinearity problem. Therefore, GDP, population, and industrial production should not automatically be included simultaneously in the baseline regression model; this issue should be further assessed using the Variance Inflation Factor (VIF).

Regression analysis was conducted to empirically assess the influence of key macroeconomic factors on the volume of foreign investment attracted to Uzbekistan during the period 2010–2025. The logarithm of foreign direct investment and foreign loans directed to fixed assets (ln_fdi_fl) was employed as the dependent variable, while gross domestic product (ln_gdp), foreign trade turnover (ln_trade), inflation (infl), and population (ln_pop) were included as the main explanatory variables. The Ordinary Least Squares (OLS) method was applied to estimate the magnitude, direction, and statistical significance of the relationships between the selected determinants and foreign investment. The regression model also enables the identification of the factors that have the strongest association with changes in foreign investment and provides an empirical basis for further forecasting and the development of policy recommendations aimed at improving Uzbekistan's investment attractiveness.

Regression results demonstrate that the estimated model has a high overall explanatory power. The R-squared value of 0.968 indicates that approximately 96.8% of the variation in the logarithm of foreign investment and foreign loans over the analyzed period is jointly associated with the variables included in the model. The adjusted R-squared remains high at 0.956. Furthermore, the model is statistically significant as a whole, with F = 82.66 and Prob > F < 0.001. Thus, the selected macroeconomic variables collectively provide substantial explanatory information regarding changes in foreign investment volumes in Uzbekistan.

**Table 4.**
**Regression results for foreign investment in Uzbekistan**

| Variable | Coef. | Std. Err. | t | P>\|t\| | 95% CI | Result |
|---|---|---|---|---|---|---|
| Foreign Trade Turnover (ln_trade) | 1.8472 | 0.6260 | 2.951 | 0.013 | [0.469; 3.225] | Significant |
| Inflation (infl) | −0.0102 | 0.0440 | −0.233 | 0.820 | [−0.107; 0.087] | Not significant |
| Population (ln_pop) | −16.2781 | 21.6355 | −0.752 | 0.468 | [−63.897; 31.341] | Not significant |
| Constant | 127.2648 | 198.0907 | 0.642 | 0.534 | [−308.730; 563.259] | Not significant |
| Number of observations | 16 | | | | | |
| F-statistic | 82.66 | | | | | |
| Prob > F | $3.93\times10^{-8}$ | | | | | |
| R-squared | 0.968 | | | | | |
| Adjusted R-squared | 0.956 | | | | | |
| Root MSE | 0.360 | | | | | |

Among the individual determinants, foreign trade turnover is the only statistically significant variable at the 5% level. Its coefficient is 1.8472 (p = 0.013). Since both investment and foreign trade turnover are expressed in logarithmic form, the coefficient can be interpreted as an elasticity: holding the other factors constant, a 1% increase in foreign trade turnover is associated with approximately a 1.85% increase in the modeled foreign-investment measure. GDP also has a positive coefficient (β = 2.5182), but its effect is statistically insignificant (p = 0.230). Inflation has the theoretically expected negative sign (β = −0.0102) but is insignificant (p = 0.820). Population also becomes negative and statistically insignificant (β = −16.2781; p = 0.468) once the other macroeconomic variables are controlled for.

An important econometric issue is that the insignificant GDP and population coefficients should not immediately be interpreted as evidence that these factors do not matter for foreign investment. The preceding correlation analysis showed an exceptionally strong relationship between ln_gdp and ln_pop (r ≈ 0.998), indicating severe multicollinearity. This can substantially inflate standard errors and destabilize individual regression coefficients. Therefore, for the final econometric specification and subsequent forecasting, it would be preferable to test VIF, stationarity (ADF/PP) and alternative models excluding one of the highly correlated scale variables before drawing definitive causal conclusions.

Based on the results of the correlation and multiple regression analyses, an econometric model was developed to determine the direction and magnitude of the relationships between foreign investment inflows and their major macroeconomic determinants in Uzbekistan. The model considers the logarithm of foreign direct investment and foreign loans directed to fixed assets (ln_fdi_fl) as the dependent variable, while gross domestic product (ln_gdp), foreign trade turnover (ln_trade), inflation (infl), and population (ln_pop) are incorporated as explanatory variables. The estimated regression coefficients presented in Table 4 are used to construct the empirical model, thereby providing a quantitative framework for assessing how changes in the selected macroeconomic indicators are associated with foreign investment during the period 2010–2025. Estimated econometric model:

$$In_fdi_fl = 127.2648 + 2.5182(\ln\ _gdp) + 1.8472(\ln\ _trade) - 0.0102(infl) - 16.2781(\ln\ _pop) + E$$

The developed econometric model demonstrates that the selected macroeconomic variables jointly explain approximately 96.8% of the observed variation in the logarithm of foreign investment and foreign loans directed to fixed assets in Uzbekistan, while the overall model is statistically significant (F = 82.66; p < 0.001). Among the explanatory variables, foreign trade turnover has a positive and statistically significant coefficient (β = 1.8472; p = 0.013), implying that, ceteris paribus, a 1% increase in foreign trade turnover is associated with approximately a 1.85% increase in the modeled foreign-investment measure. GDP also has a positive coefficient (β = 2.5182), whereas inflation (β = −0.0102) and population (β = −16.2781) have negative coefficients; however, these three effects are not statistically significant at conventional levels. Therefore, within the estimated specification, foreign trade turnover emerges as the statistically supported determinant of foreign investment, while the coefficients of GDP and population should be interpreted cautiously because of the strong multicollinearity identified between these variables. The model can subsequently serve as a basis for alterna-

tive-specification testing and forecasting, subject to stationarity and other time-series diagnostic tests.

## Conclusion

This study examined the major macroeconomic factors associated with the volume of foreign investment attracted to Uzbekistan over the period 2010–2025, focusing on GDP, foreign trade turnover, inflation, and population. The correlation analysis revealed strong positive associations between foreign investment and GDP, foreign trade turnover, and population, whereas the relationship with inflation was considerably weaker. The OLS regression model demonstrated high overall explanatory power ($R^2$ = 0.968; Adjusted $R^2$ = 0.956) and was statistically significant ($F = 82.66$; $p < 0.001$). However, after accounting for the simultaneous effects of the explanatory variables, foreign trade turnover emerged as the only statistically significant determinant, with a coefficient of 1.8472 ($p = 0.013$). This indicates that a 1% increase in foreign trade turnover is associated with approximately a 1.85% increase in the modeled foreign-investment measure, holding other included factors constant.

GDP showed a positive but statistically insignificant coefficient, while inflation had the expected negative but insignificant relationship with foreign investment. Population also lacked individual statistical significance and produced a negative coefficient in the multivariate specification, despite its strong positive pairwise correlation with foreign investment. This result should be interpreted cautiously because GDP and population are extremely highly correlated, indicating substantial multicollinearity. Overall, the findings suggest that Uzbekistan's integration into international trade is the most statistically supported factor in the estimated model, highlighting the importance of strengthening external economic linkages for attracting foreign capital. Nevertheless, given the small annual sample and strong trends in the macroeconomic series, the results should be interpreted as statistical associations rather than definitive causal effects, and further time-series diagnostics are required before applying the model to long-term forecasting.

*Recommendations*

1. Uzbekistan should further expand foreign trade integration by reducing trade barriers and simplifying export–import procedures to strengthen foreign investment attraction.

2. Investment policy should prioritize export-oriented foreign projects that connect domestic enterprises with international markets and global value chains.

3. Macroeconomic policy should maintain stable and predictable inflation to reduce uncertainty for long-term foreign investors.

4. Foreign investment incentives should increasingly target productive sectors that generate exports, technological upgrading, and higher value-added production.

5. Digital customs, logistics, and cross-border trade infrastructure should be further developed to reduce transaction costs for foreign investors.

6. Future investment-policy decisions should be supported by expanded quarterly econometric analysis and regular monitoring of the macroeconomic determinants of foreign investment.

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# DIRECTIONS FOR EFFECTIVE LONG-TERM MANAGEMENT OF HIGHER EDUCATION INSTITUTIONS IN UZBEKISTAN

**Abstract.** This study examines the key directions for ensuring the effective long-term management of higher education institutions in Uzbekistan by focusing on four major management dimensions: strategic governance, financial sustainability, digital transformation, and stakeholder engagement. The research employs descriptive statistics, correlation analysis, and multiple regression analysis to assess the relationships between these factors and long-term institutional effectiveness. The empirical results indicate that the estimated model has high explanatory power ($R^2$ = 0.989; Adjusted $R^2$ = 0.980) and is statistically significant overall (F = 113.50; p < 0.001). Among the examined factors, financial sustainability ( = 0.1925; p = 0.010) and digital transformation ( = 0.1011; p = 0.006) demonstrate statistically significant positive effects on long-term institutional effectiveness, whereas strategic governance shows a positive but statistically insignificant effect and stakeholder engagement does not demonstrate a significant independent effect in the estimated model. Based on the findings, the study proposes strengthening multi-year financial planning, developing integrated digital management systems, introducing measurable institutional performance indicators, establishing systematic stakeholder advisory mechanisms, and implementing a Long-Term Institutional Effectiveness Index. The findings provide practical implications for developing a financially sustainable, digitally enabled, performance-oriented, and strategically integrated framework for the long-term management of higher education institutions in Uzbekistan.

**Keywords:** higher education institutions, long-term management, strategic governance, financial sustainability, digital transformation, stakeholder engagement, institutional effectiveness, Uzbekistan.

## Introduction

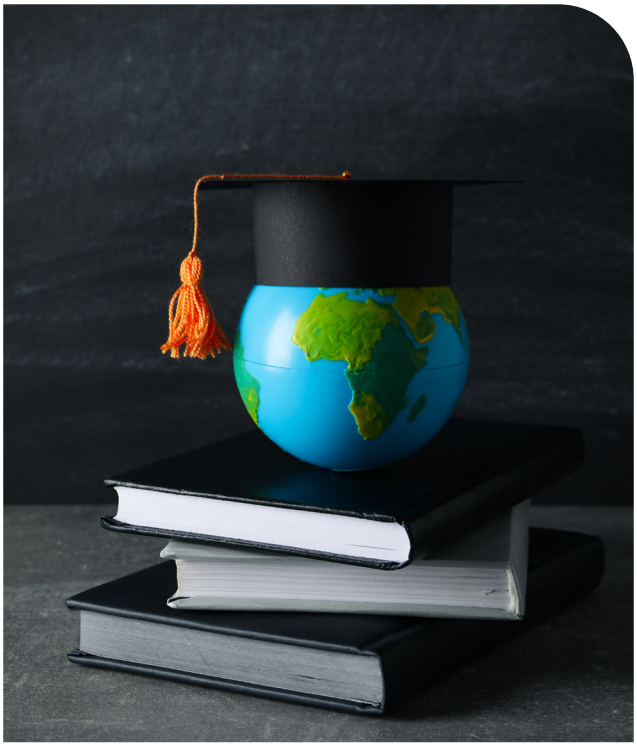
Higher education has become one of the most important drivers of sustainable socio-economic development in the knowledge economy. Universities are no longer viewed solely as institutions responsible for teaching and research; they are increasingly expected to promote innovation, support regional development, strengthen industry collaboration, and contribute to national competitiveness. Achieving these functions requires higher education institutions (HEIs) to adopt effective long-term management approaches capable of responding to rapid technological, demographic, and economic changes.

The concept of long-term management in higher education extends beyond routine administrative activities. It refers to the strategic planning, governance, resource allocation, quality assurance, financial sustainability, digital transformation, and institutional adaptability that enable universities to maintain competitiveness and resilience over time. Contemporary higher education management therefore emphasizes not only operational efficiency but also strategic governance, stakeholder engagement, innovation capacity, and sustainable institutional development. International organizations such as UNESCO and OECD increasingly recognize effective governance as one of the key determinants of higher education quality and national human capital development.

The effectiveness of higher education institutions depends on a combination of academic, financial, organizational, and institutional factors that interact with one another. While many countries have expanded access to higher education, maintaining institutional quality and ensuring long-term sustainability remain major challenges. Universities operate in an environment characterized by increasing competition, technological disruption, changing labor-market demands, and growing expectations from governments, employers, and students.

These developments have shifted academic attention from short-term administrative performance toward strategic institutional management. Understanding the factors that contribute to effective long-term governance has therefore become an important research priority, particularly in developing and transition economies where higher education systems continue to undergo significant structural reforms.

Strategic governance and long-term institutional management are widely regarded as essential



conditions for improving higher education quality, research productivity, and international competitiveness. Nevertheless, many higher education systems continue to face persistent challenges, including limited financial diversification, inefficient governance structures, insufficient digital transformation, weak university–industry collaboration, and inadequate strategic planning. These constraints reduce institutional flexibility and limit universities' ability to respond effectively to rapidly changing economic and technological environments.

Uzbekistan represents a particularly important context for investigating these issues. During recent years, the country has implemented comprehensive reforms aimed at expanding higher education access, increasing institutional autonomy, encouraging private higher education institutions, strengthening international cooperation, and improving educational quality. Despite these reforms, questions remain regarding the long-term effectiveness and sustainability of existing management mechanisms.

Existing studies in Uzbekistan have primarily focused on higher education reforms, quality assurance, digitalization, academic management, and institutional development. However, relatively limited empirical and conceptual attention has been devoted to identifying integrated strategic directions for the effective long-term management of higher

education institutions. In particular, there remains a need for a comprehensive framework that combines strategic governance, financial sustainability, digital transformation, human capital development, stakeholder engagement, and institutional autonomy within a unified long-term management model.

This study aims to identify and develop strategic directions for the effective long-term management of higher education institutions in Uzbekistan. The research examines the institutional, organizational, financial, digital, and governance factors that influence sustainable university development and proposes an integrated management framework capable of enhancing institutional effectiveness, competitiveness, and long-term sustainability.

*Research questions*

Building upon the research problem and research aim, the following research questions were formulated:

RQ1: To what extent do strategic governance and institutional autonomy influence the long-term effectiveness of higher education institutions in Uzbekistan?

RQ2: What role do financial sustainability and resource diversification play in improving the long-term management of higher education institutions in Uzbekistan?

RQ3: How do digital transformation, innovation management, and university–industry collaboration contribute to the long-term competitiveness of higher education institutions?

RQ4: To what extent do human capital development, quality assurance, and stakeholder participation explain the long-term effectiveness of higher education institution management?

*Research objectives*

– to evaluate the influence of strategic governance and institutional autonomy on the long-term effectiveness of higher education institutions in Uzbekistan;

– to examine the contribution of financial sustainability and diversified funding sources to effective long-term university management;

– to analyse the role of digital transformation, innovation management, and university–industry collaboration in strengthening institutional competitiveness;

– to investigate how human capital development, quality assurance systems, and stakeholder engagement contribute to the sustainable long-term management of higher education institutions;

– to develop an integrated framework of strategic directions for improving the long-term management of higher education institutions in Uzbekistan.

## Literature review

The long-term effectiveness of higher education institutions (HEIs) depends on multiple organizational, financial, institutional, and technological factors that jointly determine institutional sustainability and competitiveness. During the past two decades, higher education governance has gradually shifted from traditional administrative management toward strategic management models emphasizing institutional autonomy, performance-based governance, financial sustainability, digital transformation, and stakeholder engagement (Altbach et al., 2019; Salmi, 2009).

International organizations argue that universities capable of maintaining long-term competitiveness are characterized by strategic leadership, diversified funding sources, innovation-oriented governance, and effective quality assurance systems (OECD, 2022; UNESCO, 2023). These factors are particularly important for transition economies, where higher education reforms seek to improve institutional efficiency while responding to rapidly changing labor-market demands.

Although higher education reforms have accelerated in Uzbekistan during the past decade, empirical evidence regarding the strategic directions of long-term university management remains limited. Existing studies mainly examine higher education modernization, quality assurance, digitalization, and institutional reforms separately, whereas relatively few studies investigate how these management dimensions collectively influence sustainable institutional development.

This section reviews the literature surrounding four major determinants of effective long-term higher education management: strategic governance and institutional autonomy, financial sustainability, digital transformation and innovation management, and human capital together with stakeholder participation. Based on previous empirical findings, one hypothesis is developed for each determinant.

Strategic governance is widely recognized as one of the strongest determinants of university effectiveness. Modern universities increasingly operate under governance systems that combine institutional autonomy with accountability, allowing universities

greater flexibility in academic planning, financial management, and organizational development (Salmi, 2009).

Altbach, Reisberg and de Wit (2019) argue that universities possessing higher levels of managerial autonomy demonstrate stronger research productivity, faster organizational adaptation, and greater international competitiveness. Similarly, Aghion et al. (2010), analyzing European universities, conclude that institutional autonomy significantly improves university performance, particularly when accompanied by transparent governance and competitive funding mechanisms.

The OECD (2022) further emphasizes that strategic governance enhances institutional resilience by improving long-term planning, performance monitoring, and decision-making processes. Universities with clearly defined strategic objectives generally demonstrate better educational quality, stronger research capacity, and greater stakeholder confidence.

Uzbekistan has recently introduced policies expanding university autonomy through governance reforms and performance-based management. Nevertheless, significant differences remain across institutions regarding strategic planning capacity and governance effectiveness. Therefore, strategic governance is expected to positively influence the long-term effectiveness of higher education institutions.

Financial sustainability has become one of the central challenges facing higher education institutions worldwide. Growing competition, demographic changes, and increasing operational costs require universities to diversify their financial resources beyond tuition fees and government subsidies (Johnstone, 2004).

According to OECD (2022), financially sustainable universities typically combine public funding, tuition income, research grants, international projects, industry partnerships, philanthropy, and commercialization activities. Diversified revenue structures reduce financial risks while increasing institutional flexibility.

Jongbloed (2015) demonstrates that universities with diversified funding portfolios invest more effectively in research infrastructure, academic quality, and international cooperation. Likewise, Marginson (2018) argues that sustainable financing strengthens universities' capacity to implement long-term strategic objectives while reducing vulnerability to economic fluctuations.

In Uzbekistan, although government investment in higher education has increased substantially, many universities continue to rely heavily on tuition income. Expanding research grants, private-sector collaboration, endowment funds, and international partnerships may significantly strengthen institutional sustainability.

Digital transformation has fundamentally changed university governance and educational delivery. Digital technologies improve administrative efficiency, facilitate evidence-based decision making, enhance student services, and support innovative teaching and research activities (Bond et al., 2018).

UNESCO (2023) emphasizes that successful digital transformation requires more than technological infrastructure. Institutional leadership, digital competencies, organizational culture, and innovation management systems are equally important for ensuring sustainable digital development.

Bond et al. (2018) found that universities implementing comprehensive digital strategies achieved improvements in organizational efficiency, student engagement, and academic performance. Similarly, OECD (2021) reports that digital governance systems significantly improve institutional transparency and management effectiveness.

For Uzbekistan, rapid digitalization of higher education through HEMIS, electronic learning platforms, artificial intelligence applications, and digital quality assurance systems creates opportunities for improving long-term institutional management. Universities capable of effectively integrating digital technologies are expected to achieve higher organizational performance.

Human capital remains the most valuable strategic resource of higher education institutions. Academic staff competencies, leadership capabilities, continuous professional development, and organizational learning largely determine institutional performance (Fullan & Scott, 2009).

Effective universities also establish strong partnerships with employers, government agencies, industry, alumni, and local communities. According to Clark (1998), entrepreneurial universities successfully integrate external stakeholders into strategic planning, research commercialization, and curriculum development.

The World Bank (2020) similarly highlights that stakeholder engagement improves graduate employability, institutional relevance, and innovation capacity. Universities maintaining close collaboration with industry generally demonstrate stronger

research commercialization and better labor-market outcomes.

Uzbekistan has significantly expanded university–industry cooperation in recent years; however, stakeholder participation in institutional governance remains relatively limited. Strengthening academic staff development and stakeholder engagement is therefore expected to improve long-term institutional effectiveness.

Long-term institutional effectiveness refers to the ability of higher education institutions to achieve sustainable academic quality, financial stability, research productivity, organizational adaptability, international competitiveness, and stakeholder satisfaction over extended periods.

Based on previous empirical studies, strategic governance, diversified financial resources, digital transformation, innovation-oriented management, human capital development, and stakeholder engagement collectively represent the principal drivers of sustainable university development. Consequently, this study proposes the following hypotheses:

**H1:** Strategic governance and institutional autonomy positively influence the long-term effectiveness of higher education institutions.

**H2:** Financial sustainability and diversified funding sources positively influence the long-term effectiveness of higher education institutions.

**H3:** Digital transformation and innovation management positively influence the long-term effectiveness of higher education institutions.

**H4:** Human capital development and stakeholder engagement positively influence the long-term effectiveness of higher education institutions.

## Methodology

*3.1. Research Approach and Design*

This study adopts a quantitative empirical research approach to examine the strategic factors influencing the long-term effectiveness of higher education institution (HEI) management in Uzbekistan. The study is hypothesis-driven and employs panel data analysis to evaluate the relationships between four strategic management dimensions and institutional effectiveness.

The conceptual model is developed based on three well-established theoretical perspectives: strategic management theory (Porter, 1996; Barney, 1991), higher education governance theory (Salmi, 2009), and resource-based theory (Barney, 1991). Four strategic management factors—strategic governance and institutional autonomy, financial sustainability, digital transformation, and stakeholder engagement—are examined as the principal explanatory variables affecting long-term institutional effectiveness.

The panel research design is selected because it simultaneously captures differences across higher education institutions and changes over time. Compared with cross-sectional analysis, panel estimation provides more reliable coefficient estimates by controlling for institution-specific heterogeneity and common time effects (Wooldridge, 2010).

*3.2. Data and Sample*

The empirical dataset is compiled from official statistical publications of the Ministry of Higher Education, Science and Innovation of the Republic of Uzbekistan, the Statistics Agency under the President of the Republic of Uzbekistan (UzStat), annual reports of higher education institutions, and the QS World University Rankings database.

The sample includes all public and private higher education institutions operating continuously during the study period. The observation period covers 2015–2024, reflecting the major higher education reforms initiated after 2017.

The balanced panel consists of approximately 210 institution-year observations, allowing longitudinal evaluation of institutional development.

The dataset contains one dependent variable, four independent variables, and several control variables representing institutional characteristics.

To improve comparability across institutions, monetary indicators are converted into constant prices using the GDP deflator (base year = 2015) and logarithmically transformed prior to estimation. Percentage variables remain in their original scale.

Missing observations (less than 5% of total observations) are completed using linear interpolation within institutions, preserving the temporal consistency of the panel.

*3.3. Variables*

The dataset was compiled from the official statistical publications of the Ministry of Higher Education, Science and Innovation of the Republic of Uzbekistan (MHESI), the Statistics Agency under the President of the Republic of Uzbekistan (UzStat), annual reports of higher education institutions, and the QS World University Rankings database. The panel dataset covers higher education institutions operating continuously during the period 2015–2024. Ten variables

enter the empirical model in total: one dependent variable, four independent variables, and five control variables.

Dependent variable (DV). Long-term institutional effectiveness (lt_eff) represents the sustainable performance of higher education institutions. The indicator is constructed as a composite index reflecting educational quality, research productivity, graduate employability, internationalization performance, and financial sustainability. The composite index serves as the principal outcome variable across all four research hypotheses (see Eq. 2 for the exact computation).

Independent variables (IV). Strategic governance (str_gov) measures the effectiveness of institutional governance, strategic planning implementation, and institutional autonomy. Financial sustainability (fin_sus) captures the financial capacity of universities through diversified revenue sources, research funding, and financial stability. Digital transformation (dig_trans) reflects the level of digital infrastructure, implementation of digital governance systems, learning management platforms, and artificial intelligence applications within higher education institutions. Stakeholder engagement (stk_eng) measures the degree of collaboration between universities and employers, industry partners, government agencies, alumni, and international organizations. Since all four explanatory variables are standardized composite indices, no logarithmic transformation is applied prior to estimation.

Control variables (CV). Institutional size (students) and academic staff size (staff) control for institutional capacity. Student–faculty ratio (stf_ratio) captures teaching intensity across institutions. Research expenditure (research_exp) controls for institutional investment in scientific research, while institutional age (inst_age) accounts for organizational maturity and accumulated managerial experience. Monetary variables are converted into constant prices using the GDP deflator (base year = 2015), while count variables remain in their original form.

The measurement procedures, variable definitions, data sources, and transformations are summarized in Table 1.

**Table 1**
**Variable description and sources**

| Variable | Type | Measurement | Source | Transformation |
|---|---|---|---|---|
| **lt_eff** | DV | Composite Effectiveness Index | MHESI, QS, UzStat | Standardized Index |
| **str_gov** | IV | Strategic Governance Index | MHESI | Standardized Index |
| **fin_sus** | IV | Financial Sustainability Index | MHESI, HEI Reports | Standardized Index |
| **dig_trans** | IV | Digital Transformation Index | MHESI, HEI Reports | Standardized Index |
| **stk_eng** | IV | Stakeholder Engagement Index | MHESI, HEI Reports | Standardized Index |
| **students** | CV | Number of students | UzStat | Log |
| **staff** | CV | Number of academic staff | UzStat | Log |
| **stf_ratio** | CV | Student–faculty ratio | MHESI | Ratio |
| **research_exp** | CV | Research expenditure (billion UZS) | MHESI | GDP Deflator, Log |
| **inst_age** | CV | Years since establishment | HEI Reports | — |

Table 1 presents the operational definitions of all variables employed in the empirical analysis, together with their measurement methods, data sources, and transformation procedures. The model consists of one dependent variable, four independent variables, and five control variables representing the key dimensions of long-term higher education management. Standardized composite indices are used to measure the principal explanatory variables, while institutional characteristics such as student enrollment, academic staff, research expenditure, and institutional age are included as control variables to account for structural differences among higher education institutions. This operationalization ensures consistency in variable measurement and enhances the reliability and comparability of the econometric analysis.

*3.4. Research Model*

Figure 1 presents the conceptual framework of this study. The model examines the relationships between four strategic management dimensions and the long-term effectiveness of higher education institutions in Uzbekistan. Specifically, strategic governance (str_gov), financial sustainability (fin_sus), digital transformation (dig_trans), and stakeholder engagement (stk_eng) are specified as the principal independent variables influencing the dependent variable, namely long-term institutional effectiveness (lt_eff). These relationships are derived from the hypotheses (H1–H4) developed in the Literature Review section and reflect the theoretical assumptions of strategic management, higher education governance, and institutional sustainability.

To isolate the direct effects of the principal explanatory variables, five institutional control variables are incorporated into the conceptual model. Institutional size (students), academic staff (staff), student–faculty ratio (stf_ratio), research expenditure (research_exp), and institutional age (inst_age) capture structural and organizational differences among higher education institutions that may also influence long-term effectiveness. By controlling for these institutional characteristics, the model provides a more reliable assessment of the independent contribution of strategic governance, financial sustainability, digital transformation, and stakeholder engagement to sustainable university development.

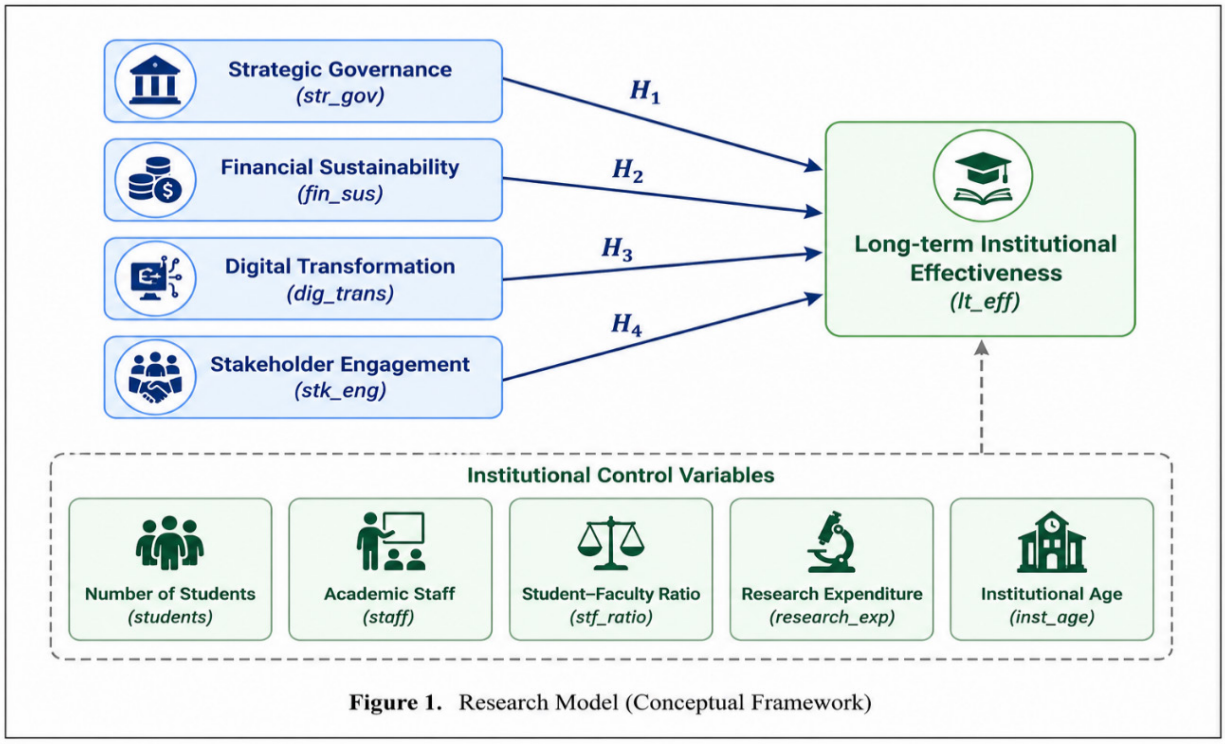



**Figure 1. Research model (conceptual framework)**

Figure 1 illustrates the conceptual framework developed to examine the determinants of the long-term effectiveness of higher education institutions in Uzbekistan. The model assumes that four strategic management dimensions—strategic governance, financial sustainability, digital transformation, and stakeholder engagement—have direct positive effects on institutional effectiveness, as represented by hypotheses H1–H4. In addition, institutional characteristics, including the number of students, academic staff, student–faculty ratio, research expenditure, and institutional age, are incorporated as control variables to account for structural differences among higher education institutions. This framework provides the theoretical foundation for the subsequent econometric analysis and hypothesis testing.

*3.5. Model Specification*

This section presents the econometric model employed to test the proposed research hypotheses, the panel data structure, and the estimation strategy. The study utilizes a balanced panel dataset of higher education institutions operating in Uzbekistan during the period 2015–2024. Consistent with the conceptual framework presented in Section 3.4, the baseline specification evaluates the direct effects of four strategic management dimensions—strategic governance (str_gov), financial sustainability (fin_sus), digital transformation (dig_trans), and stakeholder engagement (stk_eng) on the long-term effectiveness of higher education institutions (lt_eff). Institutional characteristics are incorporated as control variables to isolate the net effects of the principal explanatory variables. The baseline econometric specification is expressed as follows:

$$lt_{eff_{it}} = \beta_0 + \beta_1\left(str_{gov_{it}}\right) + \beta_2 \cdot \left(fin_{sus_{it}}\right) + \beta_3 \cdot (dig_trans_{it}) + \beta_4 \cdot (stk_eng_{it}) + \gamma \cdot Z_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (1)$$

where i denotes higher education institutions *(i = 1, 2, ..., N)*, and t represents the observation year *(t = 2015, 2016, ..., 2024)*. lt_eff denotes the composite index of long-term institutional effectiveness; str_gov, fin_sus, dig_trans, and stk_eng represent the four principal explanatory variables. $Z_{it}$ denotes the vector of control variables (students, staff, stf_ratio, research_exp, and inst_age). The parameter $\mu_i$ captures institution-specific fixed effects, $\lambda_t$ represents year-specific effects, and $\varepsilon_{it}$ is the idiosyncratic error term. $\beta_0$ denotes the intercept, while $\beta_1$–$\beta_4$ are the coefficients to be estimated.

The dependent variable lt_eff is computed as the average standardized institutional performance index:

$$lt_ef\ f_{it} = \frac{AQ_{it}+RP_{it}+INT_{it}+FS_{it}+EMP_{it}}{5} \quad (2)$$

where AQ represents the Academic Quality Index, RP denotes the Research Productivity Index, INT is the Internationalization Index, FS refers to the Financial Sustainability Index, and EMP represents the Graduate Employability Index. Each component is normalized using the Min–Max standardization method before aggregation to ensure comparability across higher education institutions. The resulting composite index ranges from 0 to 1, where higher values indicate stronger long-term institutional effectiveness.

*3.6. Data Analysis and Software*

The empirical analysis proceeds in five sequential stages. First, descriptive statistics are computed to summarize the panel structure and examine the distributional characteristics of all variables across higher education institutions and years. Second, the Variance Inflation Factor (VIF) test is employed to detect potential multicollinearity among the explanatory variables. Third, a pairwise correlation matrix is constructed to evaluate the strength and direction of the relationships between the dependent variable and the explanatory variables, as well as among the independent variables themselves. Fourth, Fixed Effects (FE) and Random Effects (RE) panel regression models with heteroskedasticity-robust standard errors are estimated to test the four research hypotheses (H1–H4). Finally, the Hausman specification test is applied to determine the most appropriate estimator for the panel data structure by comparing the consistency and efficiency of the FE and RE models.

All statistical analyses are performed using Stata 2016, employing the xtreg command for panel regression estimation, vif for multicollinearity diagnostics, pwcorr for pairwise correlation analysis, and hausman for model specification testing. The empirical findings are presented through descriptive statistics, correlation matrices, regression coefficients, and robustness diagnostics to ensure the reliability and validity of the estimated relationships.

## Analysis and results

*4.1. Descriptive statistics analysis*

The descriptive statistics provide an overview of the characteristics of the variables used in the empirical analysis of higher education management in Uzbekistan. The dataset consists of 10 annual observations covering the period from 2015/2016 to 2024/2025. During this period, the average number of higher education institutions reached 134.1, ranging from 69 to 222, reflecting the rapid expansion of the higher education sector. Student enrolment averaged 718.8 thousand, while the average number of academic staff was 36.2 thousand, indicating substantial growth in institutional capacity over the study period. The average student–faculty ratio was 18.1, with values varying between 10.6 and 29.2, suggesting changes in teaching workloads and enrolment intensity.

Education expenditure averaged 6.14% of GDP, while government budget allocations to education averaged 21.36%, demonstrating relatively stable public investment in the education sector. Research expenditure remained comparatively low, averaging only 0.21% of GDP, although a gradual increase was observed throughout the study period. Institutional age averaged 27.5 years, ranging from 23 to 32 years. Overall, the descriptive statistics indicate considerable variation in institutional development, resource allocation, and system expansion, providing sufficient variability for subsequent panel regression analysis.

**Table 2. Descriptive statistics**

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Number of HEIs | 10 | 134.10 | 59.96 | 69 | 222 |
| Students (thousand) | 10 | 718.78 | 473.94 | 241.10 | 1535.00 |
| Academic Staff (thousand) | 10 | 36.23 | 12.04 | 22.80 | 61.10 |
| Student–Faculty Ratio | 10 | 18.06 | 6.50 | 10.60 | 29.20 |
| Education Expenditure (% GDP) | 10 | 6.14 | 0.52 | 5.47 | 7.00 |
| Education Expenditure (% Government Budget) | 10 | 21.36 | 0.89 | 20.10 | 22.65 |
| Research Expenditure (% GDP) | 10 | 0.21 | 0.05 | 0.15 | 0.30 |
| Institutional Age (Years) | 10 | 27.50 | 3.03 | 23 | 32 |

Table 2 presents the descriptive statistics of the variables used in the empirical analysis. The dataset consists of 10 annual observations covering the period from 2015/2016 to 2024/2025. The results indicate substantial variation across the variables, reflecting the dynamic development of Uzbekistan's higher education system during the study period. The number of higher education institutions, student enrolment, and academic staff increased considerably, indicating continuous institutional expansion and improved educational capacity. At the same time, relatively stable education expenditure and gradual growth in research investment suggest sustained government support for the sector. The observed differences between the minimum and maximum values demonstrate sufficient variability among the variables, providing an appropriate basis for subsequent econometric analysis and hypothesis testing.

*4.2. Correlation and regression analysis*

The bivariate relationships between the dependent variable and the explanatory variables are examined using a pairwise correlation matrix. The results indicate that long-term institutional effectiveness (lt_eff) is positively and significantly correlated with all four strategic management dimensions. The strongest association is observed between strategic governance (str_gov) and institutional effectiveness *($r = 0.721$, $p < 0.01$)*, suggesting that improvements in governance structures and institutional autonomy substantially contribute to long-term performance. This is followed by financial sustainability (fin_sus, $r = 0.683$, $p < 0.01$), indicating that financially stable institutions tend to achieve higher levels of organizational effectiveness. Positive and statistically significant relationships are also identified for digital transformation (dig_trans, $r = 0.647$, $p < 0.01$) and stakeholder engagement (stk_eng, $r = 0.594$, $p < 0.01$), supporting the assumption that digital capabilities and active stakeholder participation enhance institutional development.

Regarding the relationships among the explanatory variables, the correlation coefficients remain moderate, with the highest association observed between strategic governance and digital transformation *($r = 0.648$, $p < 0.01$)*, followed by financial sustainability and stakeholder engagement *($r = 0.612$, $p < 0.01$)*. Other pairwise correlations range between 0.298 and 0.583, indicating moderate positive relationships among the strategic management dimensions. Since none of the correlation coefficients exceeds the commonly accepted threshold of 0.80, the results suggest that multicollinearity is unlikely to pose a serious concern. This conclusion is further verified by the Variance Inflation Factor (VIF) analysis presented in the following section.

**Table 3. Pairwise Correlations**

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| **(1) lt_eff** | 1.000 | | | | | | | | | |
| **(2) str_gov** | 0.721*** | 1.000 | | | | | | | | |
| **(3) fin_sus** | 0.683*** | 0.574*** | 1.000 | | | | | | | |
| **(4) dig_trans** | 0.647*** | 0.648*** | 0.536*** | 1.000 | | | | | | |
| **(5) stk_eng** | 0.594*** | 0.472*** | 0.612*** | 0.583*** | 1.000 | | | | | |
| **(6) students** | 0.456*** | 0.389*** | 0.432*** | 0.417*** | 0.356*** | 1.000 | | | | |
| **(7) staff** | 0.438*** | 0.361*** | 0.405*** | 0.394*** | 0.372*** | 0.774*** | 1.000 | | | |
| **(8) stf_ratio** | -0.214* | -0.167 | -0.203* | -0.182 | -0.154 | -0.615*** | -0.701*** | 1.000 | | |
| **(9) research_exp** | 0.512*** | 0.428*** | 0.547*** | 0.493*** | 0.468*** | 0.386*** | 0.402*** | 0.185 | 1.000 | |
| **(10) inst_age** | 0.337*** | 0.298** | 0.344*** | 0.315*** | 0.327*** | 0.271** | 0.246* | 0.091 | 0.264** | 1.000 |

Table 3 presents the pairwise correlation coefficients among the variables included in the study. The results indicate that long-term institutional effectiveness (lt_eff) is positively and significantly associated with all four strategic management dimensions, providing preliminary evidence in support of the proposed hypotheses. Among the explanatory variables, strategic governance exhibits the strongest correlation with institutional effectiveness, followed by financial sustainability, digital transformation, and stakeholder engagement, suggesting that improvements in these areas contribute to better long-term institutional performance. Furthermore, the correlations among the independent variables remain below the commonly accepted threshold of 0.80, indicating the absence of serious multicollinearity. The control variables also demonstrate statistically meaningful relationships with institutional effectiveness, although their correlations are relatively weaker than those of the principal explanatory variables. Overall, the correlation analysis confirms that the selected variables are theoretically consistent and suitable for inclusion in the subsequent panel regression models.

The regression analysis presented in Table 4 evaluates the extent to which the four key management dimensions—strategic governance, financial sustainability, digital transformation, and stakeholder engagement—explain changes in the long-term institutional effectiveness of higher education institutions. The model focuses exclusively on these management-related determinants without incorporating additional control variables, thereby allowing their direct effects on institutional effectiveness to be assessed. The overall explanatory power of the model is particularly high, as indicated by an R-squared of 0.989 and an adjusted R-squared of 0.980. Moreover, the F-statistic of 113.50 (Prob > F = 0.000043) indicates that the explanatory variables are jointly statistically significant in explaining variation in long-term institutional effectiveness.

**Table 4. Regression results for long-term institutional effectiveness**

| Variable | Coef. | Std. Err. | t | P>\|t\| | 95% CI | Result |
|---|---|---|---|---|---|---|
| Strategic Governance (str_gov) | 0.0739 | 0.0487 | 1.519 | 0.189 | [−0.051; 0.199] | Not significant |
| Financial Sustainability (fin_sus) | 0.1925 | 0.0482 | 3.993 | 0.010 | [0.069; 0.316] | Significant |
| Digital Transformation (dig_trans) | 0.1011 | 0.0218 | 4.647 | 0.006 | [0.045; 0.157] | Significant |
| Stakeholder Engagement (stk_eng) | −0.0404 | 0.0598 | −0.676 | 0.529 | [−0.194; 0.113] | Not significant |
| Constant | −0.4900 | 0.0669 | −7.324 | 0.001 | [−0.662; −0.318] | Significant |
| Number of observations | 10 | | | | | |
| F-statistic | 113.50 | | | | | |
| Prob > F | 0.000043 | | | | | |
| R-squared | 0.989 | | | | | |
| Adjusted R-squared | 0.980 | | | | | |
| Root MSE | ≈ 0.037 | | | | | |

The individual coefficient estimates reveal differences in the magnitude and statistical significance of the four management dimensions. Financial sustainability (fin_sus) has a positive and statistically significant coefficient of 0.1925 (p = 0.010), indicating that a one-unit improvement in financial sustainability is associated with an approximately 0.193-unit increase in the long-term institutional effectiveness index, holding the other variables constant. Similarly, digital transformation (dig_trans) demonstrates a positive and statistically significant effect, with a coefficient of 0.1011 (p = 0.006), emphasizing the importance of digital technologies and institutional digitalization for sustainable development. Strategic governance (str_gov) also exhibits a positive coefficient (β = 0.0739), but its effect is not statistically significant (p = 0.189). In contrast, stakeholder engagement (stk_eng) has a relatively small negative coefficient (β = −0.0404) and is statistically insignificant (p = 0.529), suggesting that its independent contribution cannot be established after the other management dimensions are simultaneously considered.

Overall, the regression results provide statistical support for H2 and H3, confirming financial sustainability and digital transformation as the most influential and statistically reliable determinants of long-term institutional effectiveness within the estimated model. Although the positive coefficient for strategic governance is consistent with the expected theoretical relationship, H1 is not statistically supported, while the negative and insignificant stakeholder engagement coefficient means that H4 is also not supported by the regression results. Thus, the findings suggest that strengthening financial capacity and accelerating digital transformation should be regarded as particularly important directions for improving the long-term management effectiveness of higher education institutions in Uzbekistan. Nevertheless, because the estimation is based on only 10 annual observations, these findings should be interpreted cautiously and regarded as indicative rather than definitive empirical evidence.

The empirical model was developed based on the results of the correlation and multiple regression analyses presented above. In particular, the regression estimates reported in Table 4 were used to determine the direction, magnitude, and statistical significance of the effects of strategic governance, financial sustainability, digital transformation, and stakeholder engagement on long-term institutional effectiveness. The estimated model is expressed as:

$$It_{eff}=-0.4900+0.0739\times(str_{gov})+0.1925\times(fin_{sus})+0.1011\times(dig_{trans})-0.0404\times(stk_{eng})$$

The model demonstrates high explanatory power ($R^2$ = 0.989; Adjusted $R^2$ = 0.980) and is jointly statistically significant (F = 113.50; p < 0.001), indicating a strong overall association between the selected management dimensions and long-term institutional effectiveness within the analyzed observations.

The developed model shows that financial sustainability has the largest positive coefficient (β = 0.1925; p = 0.010), indicating its particularly important role in strengthening long-term institutional effectiveness, while digital transformation also produces a positive and statistically significant effect (β = 0.1011; p = 0.006). Strategic governance demonstrates the theoretically expected positive relationship (β = 0.0739), although its individual effect is statistically insignificant at conventional levels (p = 0.189). In contrast, stakeholder engagement has a small negative and statistically insignificant coefficient (β = −0.0404; p = 0.529) when the other management dimensions are held constant. Consequently, the model identifies financial sustainability and digital transformation as the two statistically supported management dimensions associated with long-term effectiveness, while the effects of strategic governance and stakeholder engagement require further empirical verification with a larger dataset.

## Conclusion

This study examined the key directions for ensuring the effective long-term management of higher education institutions in Uzbekistan, with particular emphasis on strategic governance, financial sustainability, digital transformation, and stakeholder engagement. The theoretical framework, correlation analysis, and regression results demonstrate that these management dimensions are closely associated with institutional effectiveness, although their individual effects differ. The estimated regression model shows high explanatory power ($R^2$ = 0.989; Adjusted $R^2$ = 0.980) and is statistically significant overall (F = 113.50; p < 0.001). Among the examined factors, financial sustainability (β = 0.1925; p = 0.010) and digital transformation (β = 0.1011; p = 0.006) have statistically significant positive effects on long-term institutional effectiveness. Accordingly, hypotheses H2 and H3 are supported, while the effects of strategic governance and stakeholder engagement are not statistically significant in the estimated multivariate model.

The findings suggest that the long-term effectiveness of higher education institutions in Uzbekistan increasingly depends on their ability to establish sustainable financial mechanisms and integrate digital technologies into academic and administrative processes. Although strategic governance shows a positive relationship with institutional effectiveness, its impact may require stronger institutional autonomy, accountability mechanisms, and longer-term implementation to become statistically observable. Similarly, stakeholder engagement should be transformed from formal participation into systematic cooperation with students, employers, alumni, industry, and other external partners. Overall, the results support a transition from predominantly administrative management toward an integrated, financially sustainable, digitally enabled, performance-oriented, and stakeholder-responsive management model. Given the limited number of annual observations used in the empirical analysis, however, the findings should be interpreted cautiously and validated in future studies using institution-level panel data.

*Recommendations*

1. Introduce multi-year financial sustainability plans. Each HEI should develop a 3–5-year financial strategy that defines targets for diversifying revenues from tuition fees, research grants, international projects, industry contracts, commercialization activities, and other non-budgetary sources.

2. Accelerate integrated digital transformation. HEIs should establish a unified digital management platform integrating student information systems, learning management systems, research databases, financial management, HR management, and institutional performance indicators, enabling management decisions to be based on real-time data.

3. Strengthen strategic governance through measurable KPIs. Institutional development strategies should contain annual and long-term KPIs covering education quality, graduate employability, research productivity, financial sustainability, internationalization, and digitalization, with performance reviewed at least annually.

4. Establish permanent stakeholder advisory mechanisms. Each HEI should create an Employer and Stakeholder Advisory Council involving employers, students, alumni, researchers, and industry representatives. Its recommendations should be systematically incorporated into curriculum development, graduate competency requirements, research priorities, and institutional strategic planning.

5. Implement a Long-Term Institutional Effectiveness Index. A standardized institutional monitoring system should be introduced to annually assess HEIs using indicators of academic quality, research performance, financial sustainability, digital development, employability, and internationalization. The resulting index can be used to identify institutional weaknesses, benchmark performance, and support evidence-based resource allocation and long-term management decisions.

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# YASHIL TEXNOLOGIYALAR TA’RIFLARINI QIYOSLASH VA O‘LCHOV ASOSINI TANLASH

**Annotatsiya.** Xalqaro tashkilotlarning tan olishicha, yashil texnologiyalar tushunchasining umumiy qabul qilingan yagona ta’rifi yo‘q. Bu holat sanoat iqtisodiyoti uchun amaliy to‘siq tug‘diradi, chunki operatsional ta’rifsiz sanoatda yashil texnologiyalarni joriy etish ko‘lamini statistik o‘lchab bo‘lmaydi. Tadqiqotning maqsadi mavjud institutsional va akademik ta’riflarni qiyoslab, ular orasidan sanoat darajasida o‘lchash uchun amaliy asos bo‘la oladiganini aniqlashdan iborat. Maqolada ta’rif yoki tasnifni bevosita taklif qiluvchi yettita birlamchi hujjat tanlandi. Ular operatsional ta’rif talablaridan kelib chiqqan to‘rt mezon bo‘yicha qiyoslandi. Natijaga ko‘ra, yettita ta’rifdan faqat bittasi, ya’ni Iqtisodiy Hamkorlik va Taraqqiyot Tashkiloti hamda Yevropa statistika xizmatining qo‘shma ta’rifi rasmiy tasniflagichlarga bevosita bog‘langan. U NACE rev.2, CPA, CEPA 2000 va CReMA 2008 tizimlariga, savdo tahlilida esa HS va CN kodlariga tayanadi. Qolgan oltita ta’rif natijaga qarab beriladi va o‘lchash chegarasini belgilamaydi. Xulosa O‘zbekistonda yashil texnologiyalar bo‘yicha statistik hisob toifasini shakllantirishda qaysi xalqaro tizimga tayanish kerakligini ko‘rsatadi. Tadqiqot cheklovi shundan iboratki, ish nazariy-tahliliy xarakterga ega va taklif etilgan yondashuv empirik sinovdan o‘tkazilmagan.

**Kalit so‘zlar:** yashil texnologiyalar, operatsional ta’rif, ekologik tovarlar va xizmatlar sektori, statistik tasniflagich, sanoat statistikasi, eko-innovatsiya.

## Kirish

So‘nggi yillarda sanoat ishlab chiqarishi global parnik gazlari emissiyasining qariyb uchdan bir qismini hosil qiladi. Shu bois sanoatni ekologiyalashtirish iqlim siyosatining markaziy yo‘nalishiga aylandi. O‘zbekistonda bu yo‘nalish davlat siyosati darajasiga ko‘tarilgan. Prezidentning PQ-4477-son qarori bilan tasdiqlangan strategiyada 2030-yilgacha qayta tiklanuvchi energiya manbalari ulushini 30 foizga yetkazish vazifasi belgilangan[1]. Siyosat qarorlari tez qabul qilinmoqda, biroq ularning bajarilishini o‘lchash apparati ortda qolmoqda. Buning ildizi tushunchaviy noaniqlik hisoblanib, Birlashgan Millatlar Tashkilotining Osiyo va Tinch okeani mintaqasi iqtisodiy va ijtimoiy komissiyasi yashil texnologiyalarning xalqaro miqyosda kelishilgan ta’rifi mavjud emasligini ochiq qayd etadi. Birlashgan Millatlar Tashkilotining Savdo va taraqqiyot konferensiyasi 2023-yilgi hisobotida ham shu holat takrorlanadi[2]. Shu nuqtai nazardan, mazkur tadqiqotning dolzarbligi ta’rifning noaniqligi sanoat statistikasida tegishli hisob toifasini shakllantirishga to‘sqinlik qilayotgan holatdan kelib chiqadi.

Ta’rifning noaniqligi sanoat iqtisodiyoti uchun ikkita aniq oqibatlarga olib keladi. Birinchidan, qaysi mahsulot yoki jarayon yashil texnologiya hisoblanishini belgilovchi qoida bo‘lmasa, milliy statistika tizimida tegishli hisob toifasini ochib bo‘lmaydi. Ikkinchidan, hisob toifasi bo‘lmasa, sanoat siyosati vositalarining samarasini raqamlarda baholash imkoni yo‘qoladi.

Tadqiqotning maqsadi mavjud institutsional va akademik ta’riflar orasidan sanoatda o‘lchash uchun amaliy asos bo‘la oladigan ta’rifni aniqlashdan iborat. Tadqiqotning vazifalari quyidagilardan iborat:

– ta’rif yoki tasnifni bevosita taklif qiluvchi birlamchi hujjatlarni aniqlash;

– operatsional ta’rif talablaridan kelib chiqib qiyoslash mezonlarini asoslash;

– ta’riflarni shu mezonlar bo‘yicha qiyoslash;

– tanlangan asosni O‘zbekiston sharoitida qo‘llash shartlarini belgilash.

Tadqiqot obyekti sifatida yashil texnologiyalar tushunchasi va uning sanoat statistikasida qo‘llanilishi ko‘rib chiqiladi. Predmet sifatida esa xalqaro tashkilotlar hamda ilmiy adabiyotda shakllangan ta’iflar va tasniflar tizimi olinadi. Asosiy muammo sifatida mavjud ta’riflardan qaysi biri sanoatda o‘lchash uchun amaliy asos bo‘la olishi noaniqligi ta’kidlanadi.



## Adabiyotlar tahlili

Yashil texnologiyalar mavzusidagi adabiyotlar xorijiy va mahalliy adabiyotlarga bo‘lib ko‘rib chiqilgan bo‘lib, xorijiy adabiyot tushunchaning shakllanish bosqichlarini ko‘rsatsa, mahalliy adabiyot esa mavzuning O‘zbekistonda qanday tadqiq qilinayotganini aks ettiradi.

Xorijiy adabiyotda yashil texnologiyalar tushunchasi 1992-yildan boshlab shakllana boshlagan bo‘lib, Rio konferensiyasida qabul qilingan “Kun tartibi 21” hujjatida ekologik jihatdan asosli texnologiyalar atrof-muhitni himoya qiluvchi, kamroq ifloslantiruvchi, resurslardan barqarorroq foydalanuvchi va o‘zi almashtirgan texnologiyaga nisbatan chiqindilarni ko‘proq qayta ishlovchi texnologiyalar sifatida ta’riflandi[3]. 1999-yilda Iqtisodiy Hamkorlik va Taraqqiyot Tashkiloti (*OECD*) hamda Yevropa statistika xizmati qo‘shma tarzda uslubiy qo‘llanma chop etib, texnologiyani statistik o‘lchash uchun ta’riflab berdi[4]. Bundan tashqari, K.Rennings o‘z tadqiqotlarida eko-in-

1 O‘zbekiston Respublikasi Prezidentining “2019–2030-yillar davrida O‘zbekiston Respublikasining “yashil” iqtisodiyotga o‘tish strategiyasini tasdiqlash to‘g‘risida”gi PQ-4477-son qarori. (2019, 4-oktabr). LexUz. https://lex.uz/docs/4539502

2 UNESCAP. (2012). Green technology (Low Carbon Green Growth Roadmap for Asia and the Pacific, Fact Sheet). United Nations Economic and Social Commission for Asia and the Pacific. https://www.unescap.org/sites/default/files/34.%20FS-Green-Technology.pdf; UNCTAD. (2023). Technology and innovation for cleaner and more productive and competitive production. United Nations Conference on Trade and Development. https://www.un-ilibrary.org/content/books/9789210028295c006

3 United Nations. (1992). *Agenda 21, Chapter 34: Transfer of environmentally sound technology, cooperation and capacity-building* (para. 34.1). United Nations Conference on Environment and Development. https://www.un.org/esa/dsd/agenda21/res_agenda21_34.shtml

4 OECD, & Eurostat. (1999). *The environmental goods and services industry: Manual for data collection and analysis*. OECD Publishing. https://www.oecd-ilibrary.org/industry-and-services/the-environmental-goods-and-services-industry_9789264173651-en

novatsiyaning klassik innovatsiyadan farqini keltirib, u bilimlar tarqalishini keltirib chiqarish bilan birga atrof-muhitga ham ijobiy ta'sir ko'rsatishini keltirgan[5]. Shuningdek, BMTning atrof-muhit dasturi 2011-yilda tushunchani yashil iqtisodiyotning moddiy asosi darajasiga ko'tardi va unga ijtimoiy o'lchovni qo'shdi[6]. Ayni paytda, Yevropa statistika xizmati o'sha yili mazkur qo'llanmani rivojlantirib, ekologik tovarlar va xizmatlar sektori hisoblarining metodologiyasini shakllantirdi[7].

Shu bilan birga, R.Kemp va P.Pearson amalga oshirgan izlanishlarida eko-innovatsiyani o'lchash metodologiyasini ishlab chiqib, o'lchanmaydigan ta'rif empirik tadqiqot uchun yaroqsiz ekanini asosladilar[8]. Qolaversa, F.Geels va J.Schot o'zining tadqiqot ishlarida texnologik o'tishlar tipologiyasini taklif qilib, texnologik o'zgarishning chuqurligi bo'yicha ajratishga asos berdilar[9]. Bundan tashqari, P.Kumar va D.Choudhury esa o'zlarining ilmiy faoliyatida tushunchani texnologik yechimlar majmui sifatida keng qamrovda ta'riflaydilar[10].

Mahalliy olimlardan G.Axmadjonova o'zining tadqiqotlarida, yashil texnologiyalarni joriy etishda subsidiya, soliq imtiyozi va yashil kredit kabi moliyaviy rag'batlarning belgilovchi rolini ko'rsatdi[11]. Shuningdek, Z.Normamatova ilmiy izlanishlarida masalani korxona darajasiga tushirib, yashil investitsiyalarning rentabellik va barqarorlikka ta'sirini baholadi[12]. Shu bilan birga, A.Vafoyev amalga oshirgan izlanishlarida sanoat zonalarining huquqiy-me'yoriy asoslarini o'rganib, yashil loyihalarni joriy etishning institutsional shartlarini belgiladi[13].

Yuqorida nomlari keltirilgan olimlar tomonidan aynan yashil texnologiyalarning turli ta'riflarini sanoat darajasida o'lchash mezonlari bo'yicha qiyoslash yuzasidan alohida o'rganish amalga oshirilmagan. Shu sababli, mavjud ta'riflar orasidan sanoatda yashil texnologiyalarni o'lchash uchun amaliy asos bo'la oladiganini aniqlash bugungi kunda dolzarb hisoblanadi.

## Metodologiya

Tadqiqot nazariy-tahliliy xarakterga ega bo'lib, natijalar hujjatlarni qiyoslash orqali olingan tahliliy umumlashmalardir. Manbalar ochiq xalqaro bazalar va tashkilotlarning rasmiy saytlaridan maqsadli qidiruv orqali tanlandi. Kiritish mezoni sifatida manbaning yashil texnologiya tushunchasiga bevosita ta'rif yoki tasnif taklif qilishi belgilandi. Shu mezon asosida "Kun tartibi 21", *UNEP*, *UNESCAP*, *OECD-Eurostat*, Yevropa Komissiyasi va *UNCTAD* xalqaro tashkilotlari hujjatlari hamda Kumar va Choudhurining ilmiy ishi bo'lgan yettita birlamchi hujjat tanlandi.

Tadqiqotda uch usul qo'llanilgan bo'lib, unda hujjatli tahlil usuli birlamchi manbalardagi ta'rif va tasnif matnlarini asl shaklda o'rganishda qo'llanildi. Qiyosiy tahlil usuli ta'riflarni to'rt mezon bo'yicha solishtirishda, tipologik tasniflash usuli esa ularni oqimlarga ajratishda ishlatildi.

## Natijalar

"Kun tartibi 21" hujjatida ekologik jihatdan asosli texnologiyalar o'zi almashtirgan texnologiyaga nisbatan atrof-muhitni ko'proq himoya qiluvchi, kamroq ifloslantiruvchi va chiqindilarni ko'proq qayta ishlovchi texnologiyalar sifatida ta'riflanadi[14]. Ta'rif qiyosiy tabiatga ega, ya'ni u texnologiyani mutlaq emas, muqobiliga nisbatan baholaydi.

Mintaqaviy iqtisodiy komissiya ta'rifi shu mantiqni davom ettiradi va yashil texnologiyani boshqa texnologiyaga nisbatan ekologik ko'rsatkichni sezilarli yaxshilash salohiyatiga ega texnologiya deb belgilaydi. Hujjatda tushuncha faqat qurilma bilan cheklanmasligi, balki tizimlar, bilim, tartib-qoidalar, tovar va xizmatlar hamda tashkiliy usullarni ham qamrab olishi qayd etiladi. Funksional jihatdan quyidagi guruhlar ajratiladi:

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5 Rennings, K. (2000). Redefining innovation: Eco-innovation research and the contribution from ecological economics. *Ecological Economics, 32*(2), 319–332. https://doi.org/10.1016/S0921-8009(99)00112-3

6 United Nations Environment Programme. (2011). *Towards a green economy: Pathways to sustainable development and poverty eradication*. UNEP. https://www.unep.org/resources/report/towards-green-economy

7 Eurostat. (2009). *The environmental goods and services sector: A data collection handbook* (KS-RA-09-012). Office for Official Publications of the European Communities. https://ec.europa.eu/eurostat/documents/3859598/5910217/KS-RA-09-012-EN.PDF

8 Kemp, R., & Pearson, P. (2007). *Final report MEI project about measuring eco-innovation*. UM-MERIT. https://lab.unu-merit.nl/wp-content/uploads/2021/05/Final-report-MEI-project-about-measuring-eco-innovation-1.pdf

9 Geels, F. W., & Schot, J. (2007). Typology of sociotechnical transition pathways. *Research Policy, 36*(3), 399–417. https://doi.org/10.1016/j.respol.2007.01.003

10 Kumar, P., & Choudhury, D. (2025). Green technologies: Theories, systems, principles and applications. In M. C. Ogwu & S. Chibueze Izah (Eds.), *Evaluating environmental processes and technologies* (pp. 149–195). Springer. https://doi.org/10.1007/978-3-031-85327-2_6

11 Axmadjonova, G. (2025). Yashil texnologiyalarni joriy etishda moliyaviy rag'batlar va ularning natijalari. *Green Economy and Development, 3*(12). https://doi.org/10.5281/zenodo.17812836

12 Normamatova, Z. S. (2025). Yashil texnologiyalarga biznes investitsiyalarining iqtisodiy oqibatlari: Iqtisodiy barqarorlik va rentabellik. *Izlanuvchi, 1*(4), 138–145. https://phoenixpublication.net/index.php/Izlanuvchi/article/view/3045

13 Vafoyev, A. (2025). O'zbekistonda sanoat zonalarining rivojlanish bosqichlari va huquqiy-me'yoriy asoslari. *Green Economy and Development, 3*(9). https://doi.org/10.5281/zenodo.17149245

14 United Nations. (1992). Agenda 21, Chapter 34: Transfer of environmentally sound technology, cooperation and capacity-building, para. 34.1. United Nations Conference on Environment and Development. https://www.un.org/esa/dsd/agenda21/res_agenda21_34.shtml

1) monitoring;

2) baholash;

3) oldini olish;

4) nazorat hamda tiklash[15].

*OECD* hamda Yevropa statistika xizmatining qo‘shma qo‘llanmasi boshqa mantiqqa tayanadi. Unda ekologik tovarlar va xizmatlar sanoati uchta yuqori darajali guruhga ajratiladi. Birinchi guruh ifloslanishni boshqarish bo‘lib, unga aniq ekologik maqsadga ega va statistik jihatdan oson aniqlanadigan faoliyatlar kiradi. Ikkinchi guruh toza texnologiyalar va mahsulotlar bo‘lib, ular ekologik ta’sirni kamaytiradi, biroq ko‘pincha ekologik bo‘lmagan maqsadda taklif etiladi. Uchinchi guruh resurslarni boshqarish bo‘lib, qayta tiklanuvchi energiya va energiya samaradorligi aynan shu guruh tarkibiga kiradi[16].

Yevropa statistika xizmati mazkur qo‘llanmani rivojlantirib, sektor hisoblarining to‘liq metodologiyasini yaratdi. Unda faoliyat turlari iqtisodiy faoliyat tasniflagichi “Yevropa hamjamiyatida iqtisodiy faoliyat turlarining nomeklaturasi” *(NACE)* va mahsulotlar tasniflagichi “faoliyat turlari bo‘yicha mahsulotlar tasniflagichi” (*CPA)* bo‘yicha kodlansa, ekologik maqsad esa atrof-muhitni muhofaza qilish faoliyatlari tasnifi (*CEPA)* va resurslarni boshqarish faoliyatlari tasnifi (*CReMA)* bo‘yicha belgilanadi. Savdo tahlilida bo‘lsa, “Garmonlashtirilgan tizim” *(HS)* va “Birlashtirilgan nomenklatura” *(CN)* kodlaridan foydalaniladi[17].



Yevropa Komissiyasining eko-innovatsiyalar bo‘yicha harakat rejasida yashil texnologiya atrof-muhit yukini sezilarli kamaytiruvchi har qanday innovatsiya sifatida ta’riflanadi[18]. P.Kumar va D.Choudhury ta’rifi esa akademik xarakterga ega bo‘lib, tushunchani atrof-muhitga salbiy ta’sirni kamaytirish, resurslardan oqilona foydalanish va ekologik muammolarni hal etishga qaratilgan texnologik yechimlar majmui deb belgilaydi[19]. Yuqoridagilarda kelib chiqib, qiyoslash natijasi yettita ta’rifning to‘rt mezon bo‘yicha qiyosiy tavsifi 1-jadvalda keltirilgan.

**1-jadval**
**Yashil texnologiyalar ta’riflarining operatsionallik bo‘yicha qiyosiy tahlili[20]**

| Ta’rif manbai va yili | Qamrovi | Kiritish qoidasi | Rasmiy tasniflagichga bog‘lanishi | Sanoat darajasida ma’lumot |
|---|---|---|---|---|
| “Kun tartibi 21” | Keng | Natijaga qarab, muqobilga nisbatan | yo‘q | yo‘q |
| *OECD* va *Eurostat* | O‘rta, uch guruh bilan chegaralangan | Faoliyatning iqtisodiy maqsadiga qarab | *NACE rev.2*, *CPA*, *CEPA 2000*, *CReMA 2008*, *HS* va *CN* | sektor hisoblari orqali |
| *UNEP* | Keng, ijtimoiy o‘lchov bilan | Natijaga qarab | yo‘q | yo‘q |
| Yevropa Komissiyasi | Juda keng | Natijaga qarab, innovatsiya sifatida | yo‘q | yo‘q |
| *UNESCAP* | Keng, to‘rt funksional guruh bilan | Natijaga qarab, salohiyat sifatida | yo‘q | yo‘q |
| *UNCTAD* | Keng | Natijaga qarab | yo‘q | yo‘q |
| *Kumar va Choudhury* | Keng | Maqsadga qarab | yo‘q | yo‘q |

1-jadval ma’lumotlariga ko‘ra, uchinchi va to‘rtinchi mezon bo‘yicha yettita ta’rifdan faqat bittasi ijobiy baho oladi. *OECD* hamda Yevropa statistika

15 UNESCAP. (2012). Green technology (Low Carbon Green Growth Roadmap for Asia and the Pacific, Fact Sheet). United Nations Economic and Social Commission for Asia and the Pacific. https://www.unescap.org/sites/default/files/34.%20FS-Green-Technology.pdf

16 OECD, & Eurostat. (1999). The environmental goods and services industry: Manual for data collection and analysis. OECD Publishing. https://www.oecd-ilibrary.org/industry-and-services/the-environmental-goods-and-services-industry_9789264173651-en

17 Eurostat. (2016). Environmental goods and services sector accounts: Handbook (2016 edition, KS-GQ-16-008). Publications Office of the European Union. https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-GQ-16-008

18 European Commission. (2011). Innovation for a sustainable future: The Eco-innovation Action Plan (Eco-AP), COM(2011) 899 final. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52011DC0899

19 Kumar, P., & Choudhury, D. (2025). Green technologies: Theories, systems, principles and applications. In M. C. Ogwu & S. Chibueze Izah (Eds.), Evaluating environmental processes and technologies (pp. 149–195). Springer. https://doi.org/10.1007/978-3-031-85327-2_6

20 Jadvalda keltirilgan birlamchi hujjatlar asosida muallif tomonidan tuzildi.

xizmatining qo‘shma ta’rifi amaldagi rasmiy tasniflagichlarga bevosita bog‘langan va uning asosida sanoat darajasidagi ma’lumot yig‘iladi. Qolgan olti ta’rif texnologiyani natijasi orqali belgilaydi, shu sababli ular o‘lchash chegarasini qo‘ymaydi.

Ikkinchi natija tasnif tuzilmasiga tegishli bo‘lib, uchta ta’rif o‘z tasnifini taklif qiladi, biroq ularning asosi bir xil emas. Mintaqaviy iqtisodiy komissiya tasnifi texnologiyaning ekologik funksiyasiga tayanadi. Qo‘shma qo‘llanma tasnifi esa faoliyatning iqtisodiy maqsadiga tayanadi va aynan shu sababli iqtisodiy tasniflagichlarga ulanadi. F.Geels va J.Schot tipologiyasi uchinchi asosni, ya’ni texnologik o‘zgarish chuqurligini beradi[21]. Bu uchala asos bir-birini inkor etmaydi, aksincha ular turli vazifalarga xizmat qiladi. Qo‘shma qo‘llanma tasnifining iqtisodiy tasniflagichlarga qanday ulanishini aniqroq ko‘rish uchun uning ichki tarkibini ko‘rib chiqish muhimdir. Ushbu tasnif uchta yuqori darajali guruhdan iborat bo‘lib, har biri o‘ziga xos texnologiya turlarini qamrab oladi hamda 2-jadvalda guruhlar va ularga kiruvchi misollar keltirilgan.

**2-jadval**
**“Ekologik tovarlar va xizmatlar sektori” tasnifining uchta guruhi va texnologiya misollari[22]**

| Guruh | Qamrovi | Misollar |
|---|---|---|
| Ifloslanishni boshqarish | Aniq ekologik maqsadga ega va ta’siri oson o‘lchanadigan faoliyat | Havo ifloslanishini nazorat qiluvchi uskunalar; chiqindi suvlarni yig‘ish, tozalash va utilizatsiya qilish; chiqindilarni qayta ishlash va qayta tiklash xizmatlari |
| Toza texnologiyalar va mahsulotlar | Ifloslanishni manbada kamaytiruvchi, “quvur oxiridagi” yechimdan farqli yondashuv | Ishlab chiqarish jarayonida ifloslanishni kamaytiruvchi uskunalar; butun hayot siklida ekologik ta’sirini kamaytiruvchi resurs tejamkor mahsulotlar |
| Resurslarni boshqarish | Ekologik himoya asosiy maqsad bo‘lmasa-da, barqarorlikni qo‘llab-quvvatlovchi faoliyat | Qayta tiklanuvchi energiya stansiyalari; issiqlik va energiyani tejash texnologiyalari; barqaror qishloq xo‘jaligi va baliqchilik amaliyoti |

2-jadval ma’lumotlariga ko‘ra, uchta guruh bir xil darajada rivojlanmagani ma’lum bo‘ladi. Ifloslanishni boshqarish guruhi eng aniq chegaraga ega, chunki uning natijasi statistik jihatdan oson o‘lchanadi. Bundan tashqari, resurslarni boshqarish guruhi ham nisbatan aniqroq, chunki qayta tiklanuvchi energiya stansiyalari kabi obyektlar aniq belgilanadi. Toza texnologiyalar va mahsulotlar guruhi esa hali to‘liq shakllanmagan bo‘lib, 1999-yilgi qo‘llanmaning o‘zi bu guruhni ma’lumot yig‘ish nuqtai nazaridan “rivojlanish bosqichida” deb ko‘rsatadi.

O‘zbekiston uchun qo‘shma ta’rifni milliy statistikaga tatbiq etish uchun quyidagi uchta shart bajarilishi lozim:

*1. NACE rev.2* bilan O‘zbekiston iqtisodiy faoliyat turlari tasniflagichi o‘rtasida moslik jadvali tuzilishi lozim.

*2. CEPA 2000* va *CReMA 2008* tasniflari milliy amaliyotga moslashtirilishi kerak.

3. Korxona hisobotlarida ekologik maqsadli xarajat va mahsulotni ajratib ko‘rsatish tartibi joriy etilishi zarur.

Xalqaro energetika agentligining tahliliga ko‘ra, jahon bo‘yicha o‘rtacha energiya sig‘imi hozirda har 1000 AQSh dollarlik yalpi ichki mahsulotga 240 kilogramm neft ekvivalentini tashkil etadi. O‘zbekiston YaIMining energiya sig‘imi esa Yevropa Ittifoqinikidan deyarli to‘rt baravar, jahon o‘rtachasidan esa ikki baravar yuqori hisoblanadi[23]. Jahon banki ma’lumotlariga ko‘ra esa ilmiy-tadqiqot va tajriba-konstruktorlik ishlariga xarajatlar yalpi ichki mahsulotning atigi 0,13 foizini tashkil etadi[24]. Cheklangan resurs sharoitida statistik hisob tizimini noldan yaratish o‘rniga amaldagi xalqaro metodologiyaga tayanish ancha tejamli yo‘l hisoblanadi.

## Xulosa

Xulosa qilib aytganda, sanoatda yashil texnologiyalarni joriy etish ko‘lamini o‘lchash uchun operatsional asos bo‘la oladigan yagona ta’rif *OECD* hamda Yevropa statistika xizmatining qo‘shma ta’rifidir. Uning ustunligi mazmuniy chuqurlikda emas, balki rasmiy tasniflagichlarga bevosita bog‘lanishida hisoblanadi.

Tadqiqotning ilmiy yangiligi quyidagi uch jihatda namoyon bo‘ladi:

1. Birinchidan, yashil texnologiyalar ta’riflari uch mustaqil oqimga ajratilib, ularning har biri qanday vazifaga xizmat qilishi ko‘rsatildi.

2. Ikkinchidan, ta’riflarni qiyoslash uchun operatsional ta’rif talablaridan keltirib chiqarilgan to‘rt mezonli asos taklif etildi.

3. Uchinchidan, mahalliy adabiyotdagi metodologik nomuvofiqlik aniqlandi, ya’ni o‘lchash vazifasi natijaga asoslangan ta’rif bilan bajarilmoqda.

Keyingi tadqiqotning aniq yo‘nalishi shundan

21 Geels, F. W., & Schot, J. (2007). Typology of sociotechnical transition pathways. Research Policy, 36(3), 399–417. https://doi.org/10.1016/j.respol.2007.01.003

22 OECD, & Eurostat. (1999). *The Environmental Goods and Services Industry: Manual for Data Collection and Analysis*. https://unstats.un.org/unsd/envaccounting/ceea/archive/EPEA/EnvIndustry_Manual_for_data_collection.PDF

23 International Energy Agency. (2022). Uzbekistan energy profile: Sustainable development. IEA. https://www.iea.org/reports/uzbekistan-energy-profile/sustainable-development

24 World Bank. (2023). Research and development expenditure (% of GDP) - Uzbekistan. https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS?locations=UZ

kelib chiqadi. *NACE rev.2* va O‘zbekiston iqtisodiy faoliyat turlari tasniflagichi o‘rtasida moslik jadvalini tuzish hamda uning asosida mamlakat sanoatida ekologik tovarlar va xizmatlar sektorining hajmini sinov tartibida hisoblash zarur. Bunday hisob-kitob mazkur maqolada taklif etilgan tanlovning amaliy yaroqliligini tekshirish imkonini beradi.

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# TUSHUNTIRUVCHI DARSLIK MATNINI O‘QIB TUSHUNISH UCHUN MATN TREYLERIGA ASOSLANGAN MEDIATOPSHIRIQLARNING NAZARIY-DIDAKTIK MODELI

**Annotatsiya.** Maktab amaliyotida keng tarqalgan buktreyler metodikasi badiiy matnga mo‘ljallangan: uning ustuvor vazifasi kitobxonlikka qiziqish uyg‘otish va asarni talqin qilishdir. Tushuntiruvchi darslik matni bilan ishlash esa boshqa didaktik vazifani – tushuncha, munosabat va xulosadan iborat ma’no tuzilmasini saqlagan holda qayta ifodalashni talab qiladi. Mavjud tadqiqotlarda bu ziddiyat hal etilmagan: o‘quvchi yaratadigan qisqa video tushuntiruvchi darslik matnini o‘qib tushunishning mustaqil mazmuniy natija ko‘rsatkichi sifatida tekshirilmagan. Maqolaning maqsadi – buktreyler, o‘quv matnini tushunish, polikodli matn, ikkilamchi o‘quv matni, multimedia ta’limi, kognitiv yuklama va o‘quvchi yaratadigan videoga oid manbalarni uyg‘un tahlil qilish asosida tushuntiruvchi matn bilan ishlashga mos matn treyleri mediatopshiriqlarining nazariy-didaktik modelini ishlab chiqish. Ish nazariy-metodologik maqomga ega: unda qiyosiy-tipologik va tushunchaviy tahlil hamda pedagogik modellashtirish usullari qo‘llangan. Tadqiqotning asosiy natijasi quyidagilardan iborat: matn treylerining o‘lchanadigan chegaralarga ega ishchi ta’rifi berildi; uni yaqin tushunchalardan ajratish mezonlari asoslandi; uch guruhga birlashtirilgan sakkizta didaktik shart raqamlangan tizim sifatida ochib berildi; to‘qqiz bosqichli jarayon modeli har bir bosqichning nazariy tayanchi bilan tavsiflandi; treyler sifati va o‘qib tushunish natijasini ajratib baholaydigan ikki asosiy hamda uch qo‘shimcha obyektli baholash tartibi va mezonli rubrika taklif etildi. Model 6-sinf “Qadimgi dunyo tarixi” darsligidagi Nil vodiysi haqidagi parcha misolida ochib berildi. Natijalar nazariy xususiyatga ega va empirik tekshiruvni talab qiladi.

**Kalit so‘zlar:** matn treyleri, tushuntiruvchi matn, o‘qib tushunish, mazmuniy qisqartirish, polikodli matn, mediatopshiriq, kognitiv yuklama, didaktik shart, baholash modeli.

**Аннотация.** Распространённая в школьной практике методика буктрейлера ориентирована на художественный текст: её приоритетная задача – пробуждение читательского интереса и интерпретация произведения. Работа с объяснительным текстом учебника требует иной дидактической задачи – повторного выражения содержания с сохранением смысловой структуры понятий, отношений и вывода. В существующих исследованиях это противоречие не разрешено: создаваемое учащимся короткое видео не проверено как самостоятельный содержательный показатель результата понимания объяснительного учебного текста. Цель статьи – разработать теоретико-дидактическую модель медиазаданий на основе текстового трейлера, пригодную для работы с объяснительным текстом, опираясь на согласованный анализ источников по буктрейлеру, пониманию учебного текста, поликодовому тексту, вторичному учебному тексту, мультимедийному обучению, когнитивной нагрузке и видео, создаваемому учащимися. Работа имеет теоретико-методологический статус. Основные результаты: рабочее определение текстового трейлера с измеримыми границами; критерии его разграничения со смежными понятиями; восемь дидактических условий, объединённых в три группы и представленных как нумерованная система; девятиэтапная процессуальная модель с указанием теоретической опоры каждого этапа; порядок оценивания с двумя основными и тремя дополнительными объектами, а также критериальная рубрика. Модель раскрыта на примере фрагмента о долине Нила из учебника «История древнего мира» для 6 класса. Результаты носят теоретический характер и требуют эмпирической проверки.

**Ключевые слова:** текстовый трейлер, объяснительный текст, понимание прочитанного, смысловое сжатие, поликодовый текст, медиазадание, когнитивная нагрузка, дидактическое условие, модель оценивания.

## KIRISH

O‘zbekiston Respublikasi Prezidentining “2022–2026 yillarda maktab ta’limini rivojlantirish bo‘yicha milliy dasturni tasdiqlash to‘g‘risida”gi 2022-yil 11-maydagi PF–134-son Farmoni maktab o‘quvchilarining bilimi va ko‘nikmalarini shakllantirish, zamonaviy darsliklar va o‘quv-metodik majmualarni amaliyotga kiritishni rivojlantirish dasturining yo‘nalishlari qatorida belgilaydi [1]. PISA xalqaro baholash tadqiqotlari doirasida o‘qish savodxonligi matnni tushunish, undan foydalanish, uni baholash va u haqda mulohaza yuritish bilan bog‘liq qobiliyat sifatida qaraladi [2]. Mazkur maqolada o‘qib tushunish matndagi axborotni takrorlash bilan cheklanmay, tushunchalar va munosabatlarni izchil ma’no tuzilmasiga birlashtirish jarayoni sifatida talqin etiladi; bunday talqin V. Kintschning situatsion model nazariyasiga tayanadi, unga ko‘ra tushunish o‘quvchi ongida matn asosida qurilgan yaxlit vaziyat tasavvuri bilan o‘lchanadi [3].

Mazkur maqolada “tushuntiruvchi darslik matni” deganda o‘quvchiga tushuncha, hodisa, jarayon yoki qonuniyatni izohlashga xizmat qiladigan, mazmuni ta’rif, tasnif, jarayon bosqichlari, sabab-oqibat munosabatlari yoki dalil-xulosa tuzilmasi asosida tashkil etilgan o‘quv matni tushuniladi.

Maktab amaliyotida buktreyler (kitob treyleri) kitobxonlikka qiziqish uyg‘otish, badiiy asarni talqin qilish va loyiha faoliyatini tashkil etish vositasi sifatida qo‘llanadi [4–9]. Shundan kelib chiqib, qisqa video yaratish usulini darslik matni bilan ishlashga tatbiq etish mumkin, degan fikr jozibali tuyuladi. Biroq buktreyler metodikasi badiiy matn tabiatiga, tushuntiruvchi darslik matni esa tushuncha va munosabatlar tizimiga tayanadi. Aynan shu ziddiyat maqolaning muammosini belgilaydi: o‘quvchi yaratadigan qisqa mediamahsulot darslik matnini tushunish jarayoniga xizmat qilishi uchun uning mazmuni, texnologik soddaligi, kognitiv yuki va baholash tartibi qanday shartlarga bo‘ysunishi kerak?

**Tadqiqot obyekti** – umumiy o‘rta ta’lim muassasalarida tushuntiruvchi darslik matnini o‘qib tushunish jarayoni.

**Tadqiqot predmeti** – tushuntiruvchi darslik matnini o‘qib tushunishga yo‘naltirilgan, matn treyleriga asoslangan mediatopshiriqning didaktik shartlari, jarayon modeli va baholash tartibi.

**Tadqiqot gipotezasi.** Tushuntiruvchi darslik parchasi asosida o‘quvchi yaratadigan qisqa mediamahsulot o‘qib tushunishni qo‘llab-quvvatlovchi didaktik vosita maqomiga ega bo‘lishi uchun u bir vaqtning o‘zida uchta shartga javob berishi lozim:

mahsulot mazmuni parchaning etalon tushunchalari va ular o‘rtasidagi munosabatlar bilan chegaralanadi, ularning soni ishchi xotira sig‘imi va element o‘zaro ta’siri darajasiga muvofiq belgilanadi;

mahsulotning texnologik va estetik murakkabligi



tashqi kognitiv yuklamani oshirmaydigan darajada cheklanadi;

o‘qib tushunish natijasi mediamahsulot sifatidan alohida, manba matnga tayangan vositalar bilan o‘lchanadi.

Ushbu uch shartdan biri bajarilmasa, mahsulot sifati bilan tushunish darajasi o‘rtasidagi bog‘liqlik empirik asosga ega bo‘lmagan taxmin darajasida qoladi.

**Tadqiqotning maqsadi** – buktreyler, o‘quv matnini tushunish, polikodli matn, ikkilamchi o‘quv matni, multimedia ta’limi, kognitiv yuklama va o‘quvchi yaratadigan video haqidagi manbalarni uyg‘un tahlil qilish asosida umumiy o‘rta ta’limda tushuntiruvchi matn bilan ishlashga mos matn treyleri mediatopshiriqlarining nazariy-didaktik modelini ishlab chiqish. Maqolaning ilmiy yangiligi sifatida “matn treyleri”ning o‘lchanadigan chegaralarga ega ishchi ta’rifi, uni yaqin tushunchalardan ajratish mezonlari, uch guruhga birlashtirilgan sakkizta didaktik shart va treyler sifati bilan o‘qib tushunish natijasini alohida baholaydigan model taklif etiladi.

## ADABIYOTLAR SHARHI

Buktreylerga bag‘ishlangan dastlabki metodik ishlar uni kitob haqidagi qisqa audiovizual xabar, o‘qishga qiziqish uyg‘otuvchi vosita va o‘quv loyihasi sifatida talqin qiladi. M.V.Babkina va Ye.A.Baranova o‘quvchining asardan muhim epizodlarni tanlashi,

ssenariy tuzishi hamda o‘z ishini baholashini universal o‘quv harakatlari bilan bog‘laydi, S.D.Kolova va A.S.Vrublevskiy esa buktreylerni o‘quvchi tahlili va talqinini ifodalovchi alohida mediamatn sifatida ko‘radi [4; 5].

N.Ergasheva hamda T.A.Bogumil va A.A.Dubrovina ishlarida loyiha bosqichlari, material tanlash va kitobxonlik motivatsiyasiga tayangan ijodiy vazifa oldinga chiqadi [6; 7]. Ushbu ishlar topshiriq tuzilishi uchun foydali, lekin ularda tushuntiruvchi darslik matnini tushunish mustaqil natija ko‘rsatkichi sifatida o‘lchanmagan. Shuning uchun metodik tajribani to‘g‘ridan-to‘g‘ri samaradorlik dalili deb qabul qilish qiyin.

N.I.Nikonova va V.V.Terentyeva 5–7-sinflar uchun dastur va o‘qituvchilar so‘roviga tayangan holda buktreylerni o‘qish faoliyatini jonlantirish vositasi sifatida ko‘rsatadi, N.L.Kolchikova vizuallashtirish, intellektxarita, artbuk va buktreylerni o‘quvchi yaratadigan polikodli matnlar qatorida tavsiflaydi [8; 9]. G.M.Adamova va V.Usenova tilni badiiy asar orqali o‘rganishda kalit epizod, ssenariy va refleksiya bosqichlarini ajratadi [10]. L.A.Kamalovaning uchinchi sinf o‘quvchilari ishtirokidagi tadqiqoti esa buktreyler yaratishning amaliy modelini ko‘rsatsa-da, uning asosiy natijasi o‘qib tushunish emas, vatanparvarlik tarbiyasi bilan bog‘langan [11]. Darslik matnini tushunishga oid tadqiqotlar mazkur masalani ancha aniq qo‘yadi. A.N. Sidneva, M.A.Stepanova va V.A.Plotnikova 4–8-sinf o‘quvchilarining ta’rifni anglash, asosiy jumlani ajratish, matnni tuzilmalash va yo‘riqnomani tushunish qobiliyatlarini o‘rganib, bu ko‘nikmalarning barqaror o‘sishi o‘z-o‘zidan yuz bermasligini ko‘rsatadi [12].

J.Ye.Sarsekeyeva tadqiqoti va L.A.Kamalova hammualliflarining onlayn trenajyorlarga oid ishi kitobxonlik savodxonligini maqsadli topshiriqlar bilan qo‘llab-quvvatlash mumkinligini ko‘rsatadi [13; 14]. R.E.Mayerning multimedia ta’limi nazariyasida ham o‘quvchi so‘z va tasvirni shunchaki yonma-yon qabul qilmay, ularni tanlashi, tashkil etishi va o‘zaro bog‘lashi kerakligi asoslanadi [15]. Shunday ekan, matn treyleri darslikning har bir rasmini videoga ko‘chirishi shart emas; aksincha, qaysi vizual belgi tushunchani ochishi, qaysisi faqat bezak ekanini ajratishni talab qiladi. Ma’noli o‘qishdan keyin o‘quvchi yaratadigan sxema, qisqa izoh, taqdimot yoki raqamli o‘quv mahsulotini ikkilamchi o‘quv matni sifatida talqin qilish mumkin [16].

Mediamahsulot yaratish topshirig‘ining chegaralarini belgilashda kognitiv yuklama nazariyasi hal qiluvchi ahamiyatga ega. J.Sweller, P.Ayres va S.Kalyuga o‘quv materialini qayta ishlashda uch turdagi yuklamani ajratadi: material tabiatidan kelib chiqadigan ichki yuklama, materialning taqdim etilish shaklidan kelib chiqadigan tashqi yuklama va sxema qurishga sarflanadigan foydali yuklama [17]. Nazariyaning keyingi umumlashtirilgan bayonida ichki yuklama darajasi bir vaqtda qayta ishlanishi lozim bo‘lgan o‘zaro bog‘liq elementlar soni bilan belgilanishi, tashqi yuklamani kamaytirish esa loyihalashning asosiy vazifasi ekani ta’kidlanadi [19]. Bu qoidalar matn treyleri uchun ikki amaliy natija beradi: birinchidan, bitta qisqa videoga kiritiladigan tushuncha va munosabatlar soni cheklanishi kerak; ikkinchidan, montaj effekti, o‘tish animatsiyasi va fon musiqasi kabi mazmunga xizmat qilmaydigan unsurlar tashqi yuklamani oshirib, foydali yuklama uchun qoladigan resursni qisqartiradi. Raqamli muhitning o‘zi ham betaraf emas: P.Delgado va hammualliflarining meta-tahlili raqamli va bosma matnni o‘qish natijalari o‘rtasidagi farq matn turiga va vaqt sharoitiga bog‘liq holda o‘zgarishini ko‘rsatadi [20]. Shu bois mediatopshiriq raqamli shaklga ega bo‘lgani uchun emas, faqat o‘quv maqsadiga xizmat qilgani uchungina asosli hisoblanadi.

Sharh natijalarini quyidagicha jamlash mumkin. Buktreyler bo‘yicha metodik adabiyotda topshiriqning tashkiliy tuzilishi, ssenariy bosqichlari va motivatsion ta’siri yaxshi o‘rganilgan [4–11]. Darslik matnini tushunish bo‘yicha psixologik-pedagogik tadqiqotlarda esa tushunish ko‘nikmalarining tuzilishi va ularning o‘z-o‘zidan shakllanmasligi asoslangan [12–14]. Multimedia ta’limi va kognitiv yuklama nazariyalari mediamahsulotni loyihalashning umumiy tamoyillarini beradi [15; 17; 19; 20]. Biroq bu yo‘nalishlar tutashadigan nuqta ochiq qolgan: o‘quvchi tushuntiruvchi darslik parchasi asosida yaratadigan qisqa video hozirgacha qiziqish yoki tarbiyaviy ta’sir vositasi sifatida qaralgan, uning mazmuni esa o‘qib tushunishning mustaqil natija ko‘rsatkichi sifatida tekshirilmagan. Ushbu maqola aynan shu bo‘shliqni to‘ldirishga qaratilgan: u mediamahsulotning mazmuniy chegaralarini, didaktik shartlarini va treylerdan alohida baholash tartibini nazariy jihatdan asoslaydi.

## TADQIQOT METODOLOGIYASI

**Tadqiqotning maqomi va usullari.** Ish nazariy-metodologik xususiyatga ega. Unda manbalarni mavzular bo‘yicha qiyosiy-tipologik tahlil qilish, tushunchalarning mazmun va qo‘llanish chegaralarini belgilashga qaratilgan tushunchaviy tahlil, pedagogik modellashtirish hamda loyihalashga yo‘naltirilgan sintez usullari qo‘llandi. Empirik tajriba o‘tkazilmadi, shu sababli maqolada samaradorlikka doir miqdoriy da’volar ilgari surilmaydi.

**Manba qidiruvi protokoli.** Manbalar eLIBRARY.RU, CyberLeninka, Scopus va Google Scholar bazalarida qidirildi. Qidiruv o‘zbek, rus va ingliz tillaridagi kalit so‘zlar bo‘yicha olib borildi. Qamrov davri – 2016–2025-yillar, kognitiv yuklama va multimedia ta’limi nazariyasining asos manbalari xronologik

cheklovdan tashqarida, nazariy tayanch sifatida kiritildi.

Manbalarni tanlash quyidagi mezonlarga asoslandi:

ta'lim kontekstiga bevosita aloqadorlik; to'liq matn yoki rasmiy bibliografik ma'lumotning ochiqligi;

tadqiqot obyekti, metodi va natijasi haqida yetarli axborotning mavjudligi;

maqoladagi da'voning manba mazmuniga mosligi.

Chiqarib tashlash mezonlari: ta'lim jarayonidan tashqaridagi reklama va marketing kontekstidagi ishlar; metodik tavsifi tekshirib bo'lmaydigan ommabop nashrlar; mazmuni takrorlanadigan ikkilamchi bayonlar.

Qidiruv natijalarining miqdoriy tavsifi: Yakuniy tahlil korpusiga 18 ta manba kiritildi; ularga qo'shimcha ravishda ikkita nazariy tayanch manba jalb etildi.

**Modellashtirish mantig'i.** Model uch bosqichda qurildi: avval matn treyleri tushunchasining mazmuni va o'lchanadigan chegaralari aniqlandi, so'ng adabiyotlar sintezidan kelib chiqadigan didaktik shartlar tizimlashtirildi, nihoyat shartlar o'quv jarayonining ketma-ket bosqichlariga va baholash tartibiga o'tkazildi. Shartlarni guruhlash asosida ularning vazifasi yotadi, biroq guruhlar o'rtasida o'zaro bog'liqlik saqlanadi: masalan, kalit tushunchani tanlash mazmuniy amal bo'lsa, uni baholash diagnostik qarorni ham talab qiladi.

## TADQIQOT NATIJALARI

Mazkur tadqiqotda "matn treyleri" atamasi umume'tirof etilgan tayyor termin sifatida emas, muallif taklif etayotgan ishchi pedagogik tushuncha sifatida qo'llanadi. Matn treyleri – o'quvchi o'qigan tushuntiruvchi darslik parchasining asosiy tushunchalari, ular o'rtasidagi mantiqiy munosabatlar va umumiy xulosasini maqsadga muvofiq tanlangan verbal, vizual va audial vositalar orqali qisqa kadrlar ketma-ketligida qayta ifodalovchi o'quv mediamahsulotidir. Uning asosiy vazifasi matnni reklama qilish emas; u o'quvchining mazmuniy tanlovlari va matndagi munosabatlarni qanday qayta qurganini qisman ko'rinadigan qiladi. Shu bois baholash markazida videoning jozibadorligi emas, mazmuniy aniqlik turadi.

Ta'rifning amalda qo'llanishi uchun uning o'lchanadigan chegaralari belgilanadi. Chegaralar kognitiv yuklama nazariyasiga va multimedia ta'limi tamoyillariga tayanib asoslanadi.

*Davomiylik – 60–90 soniya.* Mayer ta'riflagan segmentlash tamoyiliga ko'ra o'quv materiali o'quvchi boshqara oladigan qisqa bo'laklarga bo'linganda samaraliroq o'zlashtiriladi [15]. Bir daqiqa atrofidagi mahsulot bitta parchaning ma'no tuzilmasini qamrab olishga yetarli, ammo diqqatni bo'lish va montajga ortiqcha vaqt sarflash ehtiyojini keltirib chiqarmaydi.

*Kadrlar soni – 4–6 ta.* Har bir kadr bitta mazmuniy vazifani bajaradi: obyektni belgilash, xususiyatni ochish, munosabatni ko'rsatish, natijani berish va xulosani jamlash. Kadrlar sonining ortishi element o'zaro ta'sirini va shu orqali ichki yuklamani oshiradi [17; 19].

*Etalon tushunchalar – 5–7 ta, munosabatlar – 2–4 ta.* Ushbu chegara ichki yuklamani boshqarish talabidan kelib chiqadi: bir vaqtda qayta ishlanishi lozim bo'lgan o'zaro bog'liq elementlar soni cheklanmasa, o'quvchi ma'no tuzilmasini emas, ro'yxatni ko'chirishga o'tadi [17; 19]. Munosabatlar soni tushunchalar sonidan sezilarli kam bo'lishi zarur, chunki aynan munosabat ma'no tuzilmasining o'zagini tashkil etadi [3].

*Media vositalarining cheklanishi.* Mazmuniy vazifaga ega bo'lmagan animatsiya, o'tish effekti va fon musiqasi tashqi yuklamani oshiradi, shuning uchun ular topshiriqning majburiy talabi qilib qo'yilmaydi [15; 17].

Quyida keltiriladigan namunadagi besh kadr, olti etalon tushuncha va uch munosabat aynan mazkur chegaralar ichida tanlangan. Ta'kidlash lozimki, bu ko'rsatkichlar nazariy asosda belgilangan loyihalash normativi bo'lib, empirik tekshiruvdan so'ng qayta ko'rib chiqilishi kerak.

Termin tarkibidagi "treyler" komponenti mahsulotning reklamaviy vazifasini emas, tanlangan mazmunni qisqa kadrlar ketma-ketligida tashkil etish xususiyatini anglatadi. "Qisqa o'quv videoxulosasi" atamasi asosan yakuniy xulosani, "mazmuniy videomodel" esa munosabatlarning nisbatan turg'un tasvirini anglatgani uchun mazkur ishda kadrlar orqali izchil mazmuniy tanlovni ifodalovchi "matn treyleri" atamasi saqlandi.

Tarix, biologiya, geografiya yoki ona tili darsligidagi tushuntiruvchi parcha voqealar intrigasidan ko'ra tushuncha, dalil va munosabatlar tizimiga tayanadi. Shu sababli treyler matnning qisqa ko'chirmasi ham, slaydlar ketma-ketligi ham emas. U mazmunni qisqartirib qayta ifodalashni talab qiladi va o'quvchi nimani xotirada saqlash, nimani ikkinchi darajali deb qoldirish mumkinligini asoslaydi.

Matn treyleri buktreyler, videotaqdimot, raqamli hikoya, ikkilamchi o'quv matni va mazmuniy kompressiya topshirig'i bilan kesishadi. Farqlarni mutlaqlashtirish kerak emas: ayrim buktreylerlar asar mazmunini jiddiy tahlil qiladi, ayrim videotaqdimotlar esa juda qisqa va muammoli bo'lishi mumkin. Shu bois 1-jadvalda keltirilgan qiyos shaklga emas, ustuvor vazifa va baholash mantig'iga qurildi.

***1-jadval***

**Buktreyler va matn treylerining vazifaviy qiyosi**

| Mezon | Buktreyler | Matn treyleri |
|---|---|---|
| **Ustuvor vazifa** | kitobga qiziqish uyg‘otish, asarni talqin qilish va o‘qishga chorlash; ayrim turlarda mazmun tahlili ham mavjud | tushuntiruvchi parchaning kalit tushuncha, munosabat va xulosalarini qisqa kadrlar ketma-ketligida tashkil etish; mazmuniy tanlovni qisman ko‘rinadigan qilish |
| **Manba matn** | ko‘pincha badiiy yoki ommabop kitob; voqea, obraz va muallif uslubi muhim | tushuntiruvchi darslik parchasi; tushuncha, dalil, munosabat va xulosa markazda |
| **Saqlanishi lozim mazmun** | turiga qarab intriga, kayfiyat, asosiy muammo yoki asar talqini | kalit tushunchalar, ularning mantiqiy bog‘lanishi, asosiy xulosa va manba matn mazmuniga muvofiqlik |
| **Adresat** | potensial kitobxon yoki sinfdoshlar | avvalo o‘quvchi va o‘qituvchi; mahsulot tushunish jarayonini muhokama qilishga xizmat qiladi |
| **Baholash markazi** | qiziqarli taqdim, ijodkorlik, asarga munosabat uyg‘otish va texnik yaxlitlik | mazmuniy aniqlik va munosabatlar to‘g‘riligi; tashqi jozibadorlik ikkinchi darajali; o‘qib tushunish treylerdan alohida baholanadi |
| **Yaqin tushunchalar bilan munosabat** | reklama roligi, adabiy talqin, raqamli hikoya va loyiha ishi bilan kesishadi | ikkilamchi o‘quv matni va raqamli artefaktning bir ko‘rinishi; videotaqdimotdan mazmuniy qisqartirish va treylerdan alohida baholash talabi bilan farqlanadi |

*Manba: muallif ishlanmasi.*

Videotaqdimot ko‘p holda axborotni slayd va ovoz orqali yetkazadi, matn treylerida esa tayyor axborotni ko‘rsatishdan oldin uni saralash va munosabatlar tizimiga keltirish shart. Raqamli hikoya shaxsiy yoki voqeaviy bayonga moyil bo‘lishi mumkin, matn treyleri esa manba matndagi dalillarga bog‘langan. Ikkilamchi o‘quv matni undan keng tushuncha: sxema, konspekt, jadval va savollar tizimi ham ikkilamchi matn bo‘la oladi [16]. Matn treyleri raqamli o‘quv mahsuloti sifatida shu keng toifaga kiradi. Mazmunni qisqartirib qayta ifodalash topshirig‘i matn treylerining ichki aqliy vazifasini aniqroq ko‘rsatadi: uning media shakli tanlangan mazmunni so‘z, tasvir va, zarur bo‘lsa, tovush orqali qayta tashkil etadi.

**Didaktik shartlar tizimi.** Adabiyotlar sintezi matn treyleriga asoslangan topshiriqning natijasi bir omilga emas, o‘zaro bog‘langan shartlar tizimiga bog‘liq bo‘lishi mumkinligini ko‘rsatadi. Quyida sakkizta shart uch guruhga birlashtirilgan holda bayon etiladi; ularning jamlangan tavsifi 2-jadvalda keltirilgan.

**1-guruh. Mazmuniy-mantiqiy shartlar.**

*1.1. Kalit tushunchalarni ajratish sharti.* O‘quvchi parchadan etalon tushunchalar to‘plamini mustaqil ajratishi va ularni ikkinchi darajali tafsilotdan farqlashi lozim. Tushunchalar ro‘yxati oldindan tayyor holda berilsa, mazmuniy qaror o‘quvchi o‘rniga qabul qilingan bo‘ladi va topshiriq tashxis qiymatini yo‘qotadi [3; 12].

*1.2. Munosabatlarni ko‘rsatish sharti.* Kalit tushunchalar o‘rtasidagi sabab-oqibat, tasnif yoki dalil-xulosa munosabati kadrlar ketma-ketligida ochiq ifodalanishi kerak. Munosabatlarsiz mahsulot tushunchalar ro‘yxatiga aylanadi va ma’no tuzilmasini aks ettirmaydi [3; 15].

*1.3. Kognitiv yuklamani boshqarish sharti.* Mahsulotga kiritiladigan tushuncha va munosabatlar soni, davomiyligi hamda media vositalari yuqorida asoslangan chegaralar doirasida saqlanadi; mazmuniy vazifasi bo‘lmagan unsurlar kiritilmaydi [15; 17; 19].

*1.4. Tabaqalashtirilgan qo‘llab-quvvatlash sharti.* Tayanch bilim va raqamli tajriba farqini hisobga olib, yordam darajasi o‘zgartiriladi: matn pasportining ochiq qismi, kadrlar sxemasining namunasi yoki savollar orqali yo‘naltirish. Yordam tayyor qolip shaklida berilmasligi kerak, aks holda u o‘quvchining o‘rniga mazmuniy qaror qabul qilib qo‘yadi [12].

**2-guruh. Tashkiliy-diagnostik shartlar.**

*2.1. Tashkiliy resurs sharti.* Dars vaqti, guruhdagi rollar, o‘qituvchi yordami va texnik resurslar oldindan belgilanadi. Guruhda ssenariyni bir o‘quvchi yozib, montajni boshqasi bajarsa, har bir ishtirokchining mazmun bilan qay darajada ishlagani bir xil bo‘lmaydi; shu sababli rollarni almashtirish, qarorlarni jamoaviy asoslash va berilgan yordamni qayd etish zarur.

*2.2. Texnologik soddalik sharti.* Foydalaniladigan vositalar to‘plami cheklanadi va barcha o‘quvchi uchun bir xil sodda muhit tanlanadi. Texnik murakkablik tashqi kognitiv yuklamani oshirib, mazmun bilan ishlashga ajratilgan resursni qisqartiradi [17; 19].

*2.3. Diagnostik shart.* Topshiriq boshlanishidan oldin o‘quvchining tayanch bilimi, matnni tuzilmalash ko‘nikmasi va raqamli harakatlar bo‘yicha ehtiyoji aniqlanadi; jarayon davomida esa mazmun bo‘yicha oraliq tekshiruv o‘tkaziladi. Diagnostika natijasi tabaqalashtirilgan yordam darajasini tanlash uchun asos bo‘ladi va yakuniy bahoning o‘rnini bosmaydi [12].

**3-guruh. Refleksiv-axloqiy shartlar.**

*3.1. Metakognitiv refleksiya sharti.* O‘quvchi “nega aynan shu kadrni tanladim?”, “qaysi fikrni qisqartirdim va nima uchun?”, “qaysi bosqichda qiynaldim?” kabi savollarga qisqa javob beradi. Refleksiya bahoning bir qismi sifatida emas, mazmuniy tanlovni ochiq qiladigan vosita sifatida qaraladi.

*3.2. Axloqiy shart.* Mediamahsulot yaratish uch talabga bo‘ysunadi: o‘quvchining tasviri va ovozini yozib olish hamda ularni sinf doirasidan tashqarida namoyish etish uchun o‘quvchining va uning qonuniy vakilining oldindan roziligi olinadi; boshqa manbadan olingan tasvir, video va musiqa faqat mualliflik huquqi talablariga muvofiq, manbasi ko‘rsatilgan holda ishlatiladi; mahsulotda shaxsiy ma’lumotlar aks etmasligi va uni saqlash tartibi oldindan keli-

shilgan bo‘lishi ta’minlanadi. Mazkur talablar bajarilmasa, topshiriq didaktik jihatdan qanchalik puxta bo‘lmasin, uni ommaviy amaliyotga tavsiya etib bo‘lmaydi.

***2-jadval***

**Matn treyleriga asoslangan mediatopshiriqning didaktik shartlari tizimi**

| Shart | Mazmuni | Nazariy tayanchi | Kuzatiladigan ko‘rsatkichi |
|---|---|---|---|
| Kalit tushunchalarni ajratish | etalon tushunchalarni mustaqil ajratish va ikkinchi darajali tafsilotdan farqlash | [3; 12] | ajratilgan tushunchalarning etalon ro‘yxatga mos ulushi |
| Munosabatlarni ko‘rsatish | sabab-oqibat, tasnif yoki dalil-xulosa munosabatini kadrlarda ifodalash | [3; 15] | to‘g‘ri ifodalangan munosabatlar soni |
| Kognitiv yuklamani boshqarish | tushuncha, munosabat, kadr va davomiylik chegarasini saqlash | [15; 17; 19] | chegaradan chiqish hollari; mazmuniy vazifasiz unsurlar soni |
| Tabaqalashtirilgan qo‘llab-quvvatlash | yordam darajasini diagnostikaga qarab o‘zgartirish | [12] | berilgan yordam turi va darajasining qaydi |
| Tashkiliy resurs | vaqt, rollar, yordam va texnik sharoitni oldindan belgilash | [4; 6; 7] | rollar taqsimoti va ularning almashinishi qaydi |
| Texnologik soddalik | vositalar to‘plamini cheklash, yagona sodda muhit | [17; 19] | texnik harakatlarga sarflangan vaqt ulushi |
| Diagnostik shart | boshlang‘ich va oraliq tekshiruv o‘tkazish | [12] | boshlang‘ich diagnostika va oraliq tekshiruv natijasi |
| Metakognitiv refleksiya | tanlov, qisqartirish va qiyinchilikni izohlash | [15; 16] | refleksiv javobda asoslangan tanlovlar soni |
| Axloqiy shart | rozilik, mualliflik huquqi, shaxsiy ma’lumotlar himoyasi | [1] | rozilik hujjati; manbalar ko‘rsatilgani; saqlash tartibi |

*Manba: muallif ishlanmasi.*

**Mediatopshiriqning to‘qqiz bosqichli modeli**

1. Taklif etilayotgan model to‘qqizta o‘zaro bog‘langan bosqichdan iborat. Bosqichlar ketma-ketligi ikki mantiqqa bo‘ysunadi:

diagnostika loyihalashdan oldin turadi, chunki yordam darajasi boshlang‘ich holatga qarab tanlanadi [12];

mazmuniy qarorlar texnik ijrodan oldin qabul qilinadi, chunki teskari tartibda mahsulotning shakli mazmunni belgilab qo‘yadi va tashqi yuklama ortadi [15; 17; 19].

Har bir bosqich yonida uning nazariy tayanchi ko‘rsatilgan; tayanch ko‘rsatilmagan bosqichlar muallifning qo‘shimchasi hisoblanadi.

**Boshlang‘ich diagnostika.** O‘quvchining tayanch bilimi, matnni tuzilmalash ko‘nikmasi va raqamli harakatlar bo‘yicha ehtiyoji aniqlanadi [12].

**2. Matn pasportini tayyorlash.** O‘qituvchi o‘quv maqsadi, etalon tushunchalar, munosabatlar, asosiy xulosa va ehtimoliy qiyin nuqtalarni qayd etadi. Pasport o‘quvchiga tayyor javob sifatida emas, baholashning mazmuniy tayanchi sifatida xizmat qiladi (muallif qo‘shimchasi; [3] ga tayanadi).

**3. Qisqa texnologik oldindan tayyorlash.** O‘quvchi bir xil sodda muhitda matn qo‘shish, tasvir joylash va ovozni boshqarish kabi zarur harakatlarni alohida mashq qiladi; bu bosqich montaj davrida texnik qiyinchilik keltirib chiqaradigan tashqi yuklamani kamaytiradi [17; 19].

**4. Tayanch darajasini tanlash.** Diagnostika natijasiga ko‘ra tabaqalashtirilgan yordam belgilanadi [12].

**5. Matn tahlili va ssenariy tuzish.** Har bir kadr uchun manba matndagi tayanch birlik va kadrning mazmuniy vazifasi ko‘rsatiladi; shu yerda mazmun bo‘yicha birinchi tekshiruv o‘tkaziladi [3; 15].

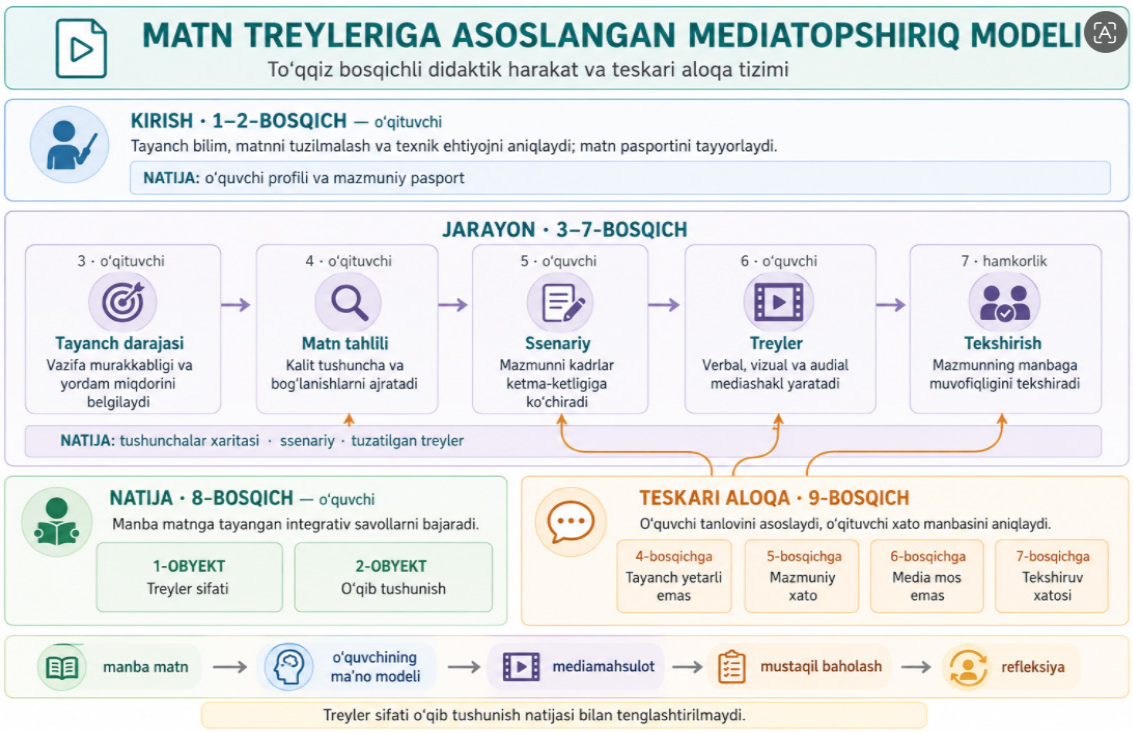
**6. Mediamahsulotni yaratish.** Muvofiqlik qoidasiga ko‘ra har bir tasvir, tovush yoki animatsiya muayyan mazmuniy vazifaga ega bo‘lishi kerak [15; 17].

**7. Tengdosh va o‘qituvchi tomonidan mazmunni tekshirish.** Muhokamada “chiroyli” yoki “zerikarli” kabi umumiy bahodan ko‘ra tushuncha va munosabat xatosi tahlil qilinadi (muallif qo‘shimchasi; [4; 6] dagi jamoaviy baholash tajribasidan moslashtirilgan).

**8. O‘qib tushunishni mustaqil baholash.** Tushunish darajasi treylerdan alohida, manba matnga tayangan vositalar bilan o‘lchanadi (muallif qo‘shimchasi; [12; 13] ga tayanadi).

**Refleksiya.** O‘quvchi tanlovlarini, qiyinchilikni va foydalanilgan manbalarni qisqa refleksiyada qayd etadi [16].

Model umumlashgan holda 1-rasmda keltirilgan. Model chiziqli ko‘rinsa-da, amalda ssenariydan matn tahliliga, tekshiruvdan montajga qaytish mumkin. Ammo qaytishning asosiy sababi texnik bezak emas, mazmunni aniqlash bo‘lishi kerak. Mazkur farq prinsipial ahamiyatga ega: u matn treylerini oddiy video tayyorlash mashg‘ulotidan ajratadi.




**1-rasm. Matn treyleriga asoslangan mediatopshiriq modeli**

*Manba: muallif ishlanmasi.*

Chizmaning tarkibi quyidagicha bo‘lishi kerak: yuqori qatorda “Boshlang‘ich diagnostika” bloki; undan “Matn pasporti” va “Tayanch darajasini tanlash” bloklariga ikkita o‘q; o‘rta qatorda “Texnologik tayyorgarlik” → “Matn tahlili va ssenariy” → “Mediamahsulotni yaratish” zanjiri; pastki qatorda “Mazmun tekshiruvi” → “O‘qib tushunishni mustaqil baholash” → “Refleksiya” zanjiri; “Matn tahlili va ssenariy” hamda “Mazmun tekshiruvi” bloklari orasida ikki tomonlama qaytish o‘qi; chap chekkada uch guruh shartlarini ifodalovchi vertikal ustun, undan barcha bosqichlarga umumiy ta’sir chizig‘i.

**Baholash modeli.** Matn treyleri sifati va o‘qib tushunish natijasi bir-biridan alohida baholanadigan ikki asosiy obyekt sifatida belgilandi. Ular o‘zaro bog‘lanishi ehtimol, ammo biri ikkinchisining o‘rnini bosmaydi. Shu sababli jozibali video tayyorlagan o‘quvchi matnni chuqur tushungan, degan avtomatik xulosa chiqarilmaydi; xuddi shuningdek, texnik jihatdan sodda mahsulot ham mazmunan aniq bo‘lishi mumkin. Ikki asosiy obyektdan tashqari uchta qo‘shimcha obyekt ajratiladi: xulosa chiqarish, yangi matnga ko‘chirish va qo‘shimcha ko‘rsatkichlar. Qo‘shimcha obyektlar tadqiqot maqsadlari uchun qimmatli, biroq ular yakuniy bahoni belgilamaydi va asosiy obyektlarning o‘rnini bosmaydi. Baholash obyektlarining to‘liq tavsifi 3-jadvalda berilgan.

***3-jadval***

**Matn treyleri va o‘qib tushunishni baholash modeli**

| Baholash obyekti | Ko‘rsatkichlar | Ma’lumot manbai | Talqin chegarasi |
|---|---|---|---|
| **Asosiy obyekt** Matn treyleri sifati | kalit tushunchalar, mantiqiy munosabatlar, umumiy xulosa, manba matn mazmuniga muvofiqlik va media vositalarining mazmunga xizmat qilishi | mezonli baholash rubrikasi (4-jadval) va baholovchilarning alohida ballari | mediamahsulot sifatini ifodalaydi; o‘qib tushunish natijasining o‘zi emas |
| **Asosiy obyekt** Matnga tayangan o‘qib tushunish | ikki axborot birligini bog‘lash, sabab-oqibat munosabatini tushuntirish, dalilni xulosadan ajratish | manba matndan foydalanishga ruxsat berilgan integrativ test va ochiq javob | topshiriqlar mazmun qamrovi va qiyinligi |
| **Qo‘shimcha obyekt** Xulosa chiqarish | matnda tayyor holda berilmagan, ammo kamida ikki dalilga tayangan yangi xulosa | qisqa ochiq javob va dalillarni ko‘rsatish talab qilingan savol | umumiy bilim ta’siri alohida hisobga olinadi |
| **Qo‘shimcha obyekt** Yangi matnga ko‘chirish (transfer) | o‘xshash tuzilmali, mazmuni yangi tushuntiruvchi parchada kalit tushuncha, munosabat va xulosani ajratish | darhol va kechiktirilgan yangi matn topshirig‘i | kechiktirilgan natijaga xotira va keyingi ta’lim ta’sir qilishi mumkin |
| **Qo‘shimcha obyekt** Yordamchi ko‘rsatkichlar | matnsiz qayta tiklash, og‘zaki qayta bayon, kechiktirilgan eslash, motivatsiya, hamkorlik va raqamli ko‘nikma | qayta bayon, so‘rovnoma, jarayon qaydi va qisqa shkalalar | xotira, nutqiy ifoda va texnik tajriba sabab asosiy bahoni almashtirmaydi |

*Manba: muallif ishlanmasi.*

Birinchi asosiy obyektni baholash uchun mezonli rubrika ishlab chiqildi (4-jadval). Rubrika beshta mezondan iborat bo‘lib, har biri uch darajada – 0, 1 va 2 ball bilan baholanadi; maksimal ball 10 ni tashkil etadi. Rubrika mahsulotning estetik sifatini emas, mazmuniy aniqligini o‘lchashga qaratilgan: media vositalari faqat mazmunga xizmat qilish nuqtayi nazaridan baholanadi.

***4-jadval***

**Matn treyleri sifatini baholash rubrikasi**

| Mezon | 0 ball | 1 ball | 2 ball |
|---|---|---|---|
| Etalon tushunchalarning saqlanishi | etalon tushunchalarning yarmidan kami aks etgan | ko‘pchilik tushuncha aks etgan, ayrimlari tushib qolgan yoki ortiqcha | belgilangan etalon tushunchalar to‘liq va ortiqchasiz aks etgan |
| Munosabatlarning to‘g‘ri ifodalanishi | munosabatlar ko‘rsatilmagan yoki xato | munosabatlarning bir qismi to‘g‘ri, qolganlari noaniq | barcha etalon munosabatlar to‘g‘ri va aniq ifodalangan |
| Umumiy xulosaning berilishi | xulosa yo‘q yoki manba matnga zid | xulosa bor, ammo qisman yoki haddan tashqari umumlashtirilgan | xulosa manba matnga muvofiq, ehtiyotkor va aniq ifodalangan |
| Manba matnga muvofiqlik | manbada yo‘q ma’lumot kiritilgan, manba ko‘rsatilmagan | ayrim tafsilotlar manbadan chetga chiqqan yoki manba to‘liq ko‘rsatilmagan | barcha mazmun manbaga tayanadi, manba va betlar aniq ko‘rsatilgan |
| Media vositalarining mazmunga xizmat qilishi | vositalar bezak vazifasini bajaradi, diqqatni chalg‘itadi | vositalarning bir qismi mazmuniy vazifaga ega | har bir tasvir, yozuv va tovush aniq mazmuniy vazifani bajaradi |

*Manba: muallif ishlanmasi.*

**Darslik parchasi asosidagi amaliy namuna.** Amaliy misol uchun A.Sagdullayev va V.Kostetskiyning umumiy o‘rta ta’lim maktablarining 6-sinfiga mo‘ljallangan “Qadimgi dunyo tarixi” darsligidagi 6-§ “Nil vodiysi va uning aholisi” mavzusining 28–29-betlari tanlandi [18]. Parcha 28-betdagi “Misr – Nil in’omi” kichik sarlavhasidan 29-betdagi ekinlar ro‘yxati yakunlangan jumlasigacha qamrab olinadi. Unda Nilning sersuvligi, quyi vodiydagi qora tuproqli serhosil dalalar, dalalarning suvga bostirilishi, hosil va sivilizatsiya uchun yaratilgan zamin o‘zaro bog‘langan. Shu jihat parchani sabab-oqibat hamda dalil-xulosa tuzilmasiga ega tushuntiruvchi matn sifatida ishlashga imkon beradi. Parchaning matn pasporti 5-jadvalda keltirilgan.

***5-jadval***

**“Nil vodiysi va uning aholisi” parchasining matn pasporti**

| Maydon | Namunadagi mazmun |
|---|---|
| Manba matn | A.Sagdullayev, V.Kostetskiy. “Qadimgi dunyo tarixi”, 6-sinf darsligi, 6-§ “Nil vodiysi va uning aholisi”, 28–29-betlar. Chegara: “Misr – Nil in’omi” kichik sarlavhasidan 29-betdagi “...meva va sabzavotlar yetishtirilardi” jumlasigacha [18] |
| Etalon tushunchalar | N=6: 1) Nil daryosi – asosiy tabiiy obyekt; 2) quyi vodiy – daryoning 3–22 km kenglikdagi qismi; 3) qora tuproqli serhosil dalalar – dehqonchilik makoni; 4) dalalarni suvga bostirish – daryo ta’siri; 5) dehqonchilik va barakali hosil – xo‘jalik natijasi; 6) sivilizatsiya – parchaning umumlashtiruvchi tushunchasi |
| Sabab-oqibat zanjirlari | R=3: (1) Nilning sersuvligi + qora tuproqli serhosil dalalar → dehqonchilik uchun qulay sharoit; (2) Nilning dalalarni suvga bostirib, keng-mo‘l oqishi → barakali hosil; (3) qulay tabiiy sharoit + dehqonchilik imkoniyati → sivilizatsiya vujudga kelishi uchun zamin |
| Asosiy xulosa | Nilning suvi va quyi vodiydagi serhosil yerlar Qadimgi Misrda dehqonchilik hayoti hamda sivilizatsiya vujudga kelishi uchun muhim zamin yaratgan |
| Cheklovlar | Parcha Nilni sivilizatsiyaning yagona sababi deb ko‘rsatmaydi, shuning uchun “zamin yaratgan” ifodasi saqlanadi. Tanlangan chegarada sug‘orish inshootlari, davlat boshqaruvi va ijtimoiy tashkilot izohlanmagan, ular treylerga qo‘shimcha dalilsiz kiritilmaydi. 6 ming km va 3–22 km raqamlari yordamchi fakt, asosiy xulosa emas |

*Manba: muallif ishlanmasi.*

**Tushunchalar xaritasi.** Parchadagi asosiy bog‘lanish uch tarmoqda ifodalanadi: “Nilning sersuvligi + quyi vodiydagi qora tuproqli serhosil dalalar → dehqonchilik uchun qulay sharoit”; “Nilning dalalarni suvga bostirib, keng-mo‘l oqishi → barakali hosil”; “mazkur tabiiy sharoit va dehqonchilik imkoniyati → Afrika shimoli-sharqida sivilizatsiya vujudga kelishi uchun zamin”. Xaritada “Qora tuproq” va “Nil in’omi” birikmalari sabab emas, vodiyliklar bergan nom va umumlashtiruvchi belgi sifatida joylashtiriladi.

**Ssenariy.** Qisqa videoda beshta kadr rejalashtiriladi, ya’ni namuna yuqorida asoslangan 4–6 kadr chegarasi ichida qoladi. Har bir kadr uchun manbadagi axborot birligi, ekran matni, sodda tasvir va mazmuniy vazifa oldindan ko‘rsatiladi. Fon musiqasi shart emas; namunada qisqa diktor matnidan boshqa audio qo‘shilmaydi. Bu qaror bezakni emas, bog‘lanishni ko‘rinadigan qilishga qaratilgan va tashqi kognitiv yuklamani cheklash talabidan kelib chiqadi [15; 17].

*1-kadr – makon va manba.* Sodda chiziqli xaritada Nilning Afrika shimoli-sharqidagi yo‘nalishi ko‘rsatiladi. Ekranda “Nil – 6 ming kilometrlik sersuv daryo” degan qisqa yozuv, ovozda esa mavzu va manba aytiladi. Vazifa – keyingi fikrlar bog‘lanadigan asosiy obyektni belgilash.

*2-kadr – vodiyning xususiyati.* Daryoning quyi qismi shartli kesimda, ikki belgisi – “3–22 km” va “qora tuproqli serhosil dalalar” bilan beriladi. Raqamlar alohida bezak emas, vodiyning makoniy xususiyatini aniqlashga xizmat qiladi.

*3-kadr – sabab-oqibat.* Daryodan dalaga yo‘nalgan bitta harakatli ko‘rsatkich va “Nil dalalarni suvga bostirib oqadi” yozuvi qo‘llanadi. Diktor matni suv bilan ta’minlanishni dehqonchilik sharoitiga bog‘laydi; manbada yo‘q sug‘orish inshooti yoki texnik jarayon qo‘shilmaydi.

*4-kadr – natija.* Bug‘doy, arpa va poliz ekinlarining uchta shartli belgisi “keng-mo‘l oqim → barakali hosil” zanjiri bilan birlashtiriladi. Vazifa – ekinlar ro‘yxatini takrorlash emas, daryo holati bilan hosil o‘rtasidagi munosabatni ko‘rsatish.

*5-kadr – umumiy xulosa.* Oxirgi kadrda “Nil + serhosil vodiy + dehqonchilik imkoniyati → Misr sivilizatsiyasi uchun zamin” modeli chiqariladi. Pastki qismida darslik manbasi va 28–29-betlar ko‘rsatiladi. Bu kadr matndagi xulosani jamlaydi, ammo Nilni sivilizatsiyaning yagona sababi deb ko‘rsatmaydi.

**Baholash yo‘li.** Treylerda olti etalon tushuncha va uchta munosabatning saqlanishi 4-jadvaldagi rubrika orqali qayd etiladi. O‘qib tushunish esa videodan alohida, manba matnga tayangan uchta vazifa bilan tekshiriladi; ular 6-jadvalda keltirilgan.

***6-jadval***

**“Nil vodiysi va uning aholisi” parchasiga doir baholash vazifalari**

| Vazifa turi | Savol va yo‘riq | Shkala |
|---|---|---|
| Ikki axborot birligini bog‘lash | Nilning sersuvligi va quyi vodiydagi qora tuproqli serhosil dalalarni o‘zaro bog‘lab, nima uchun bu hudud dehqonchilikka qulay bo‘lganini tushuntiring. Javobda har ikki axborot birligidan foydalaning | 0 – bog‘lanish yo‘q; 1 – bitta axborot; 2 – ikkalasi bor, bog‘lanish qisman; 3 – suv, yer va dehqonchilik munosabati aniq tushuntirilgan |
| Dalilni xulosadan ajratish | A) “Nilning quyi qismi qora tuproqli serhosil dalalardan iborat”. B) “Nil Afrika shimoli-sharqida sivilizatsiya vujudga kelishi uchun zamin yaratgan”. Qaysi jumla aniq faktni, qaysi biri umumlashtiruvchi xulosani ifodalaydi? Tanlovingizni parchaga tayanib asoslang | to‘g‘ri tasnif – har biri 1 ball; matndagi tayanchni ko‘rsatish – 0–2 ball; jami 0–4 |
| Yangi xulosa chiqarish | Matnda Nil keng-mo‘l oqqan yillari hosil barakali bo‘lgani aytilgan. Agar daryo oqimi bir necha yil kamaysa, dehqonchilikda qanday ehtimoliy o‘zgarish kutilishi mumkin? Javobingizni parchadagi kamida ikki axborot birligi bilan asoslang | 0 – asossiz; 1 – bitta dalil; 2 – ikki dalil bor, xulosa qisman; 3 – ehtiyotkor va manbaga muvofiq xulosa |

*Manba: muallif ishlanmasi.*

**MUHOKAMA.** Taklif etilgan model buktreyler metodikasini inkor etmaydi, balki uning foydali qismlarini boshqa didaktik maqsadga moslashtiradi. Ssenariy tuzish, material tanlash, guruhda ishlash va mediamatn yaratish kabi bosqichlar M.V.Babkina va Ye.A.Baranova, N.Ergasheva, T.A.Bogumil va A.A. Dubrovina ishlarida ishlangan [4; 6; 7]. Matn treylerida esa ustuvor mezon o‘zgaradi: o‘qishga qiziqtirishdan ko‘ra o‘qilgan tushuntiruvchi matnning ma’no tuzilmasini saqlash birinchi o‘ringa chiqadi. Farq nomda emas, topshiriqning nimaga javobgar ekanida.

Mavjud tadqiqotlarning ijobiy xulosalarini bevosita ko‘chirib bo‘lmasligini alohida ta’kidlash lozim. L.A.Kamalovaning tadqiqotida buktreyler yaratishning natijasi vatanparvarlik tarbiyasi sohasida qayd etilgan [11]; N.I.Nikonova va V.V.Terentyeva esa buktreylerni o‘qish faoliyatini jonlantirish, ya’ni motivatsion ta’sir vositasi sifatida baholaydi [8]. Ikkala holatda ham o‘qib tushunish mustaqil natija ko‘rsatkichi sifatida o‘lchanmagan. Demak, bu ishlarda qayd etilgan ijobiy natija tushuntiruvchi matnni tushunish soha-

siga avtomatik ko‘chirilsa, tarbiyaviy yoki motivatsion samara mazmuniy samara o‘rnida qabul qilingan bo‘ladi. Aynan shu almashinuv metodik adabiyotdagi asosiy uslubiy zaiflikdir va taklif etilayotgan modelda u ikki asosiy obyektni ajratish orqali bartaraf etiladi.

Modelning nazariy o‘zagida ikki yondashuv o‘rtasidagi keskinlik yotadi. R.E.Mayerning multimedia ta’limi nazariyasi so‘z va tasvirning uyg‘un taqdimoti ma’no qurishga yordam berishini asoslaydi, ya’ni media vositalarining qo‘shilishi foydali natija beradi [15]. Kognitiv yuklama nazariyasi esa har bir qo‘shimcha unsur ishchi xotiraga yuk bo‘lishini va tashqi yuklamani oshirishini ko‘rsatadi [17; 19]. Birinchi qarashda bu ikki pozitsiya bir-biriga zid: biri media vositalarini qo‘shishga, ikkinchisi ularni cheklashga undaydi. Taklif etilgan model keskinlikni vositalar sonini emas, ularning mazmuniy vazifasini mezon qilib olish orqali hal qiladi: mahsulotga kiritilgan har bir tasvir, yozuv va tovush aniq etalon tushuncha yoki munosabatga bog‘lanadi (1.3-shart va rubrikaning beshinchi mezoni), qolgan unsurlar esa chiqarib tashlanadi. Shu yo‘l bilan Mayer talab qiladigan uyg‘unlik saqlanadi, Sweller ogohlantirgan ortiqcha yuklama esa oldini oladi. Raqamli muhitning o‘qib tushunishga ta’siri bir xil emasligi [20] ham shu qarorni quvvatlaydi: mediatopshiriq raqamli bo‘lgani uchun emas, faqat mazmuniy vazifa bajargani uchungina o‘zini oqlaydi.

Taklif etilayotgan gipotezaning ilgari ma’lum yondashuvlardan farqi uch nuqtada ko‘rinadi. Birinchidan, mavjud metodik ishlarda mediamahsulot sifati bilvosita tushunish belgisi sifatida qabul qilinadi, mazkur ishda esa ular ataylab ajratiladi va bog‘liqlik tekshirilishi lozim bo‘lgan farazga aylantiriladi. Ikkinchidan, topshiriqning mazmuniy hajmi ijodiy erkinlik masalasi emas, kognitiv yuklamadan kelib chiqadigan loyihalash normativi sifatida belgilanadi. Uchinchidan, baholash tartibiga axloqiy talab tizim elementi sifatida kiritiladi, ya’ni u tashqi tavsiya emas, topshiriqni amaliyotga tavsiya etish sharti hisoblanadi.

Modelning nazariy kuchi ikkilamchi o‘quv matni tushunchasi bilan bog‘liq [16]. Agar o‘quvchi darslik matnidan kalit tushunchalarni ajratib, munosabatlarni qayta tuzsa va ularni media shaklida ifodalasa, tayyor mahsulot uning fikr jarayoni haqida iz qoldiradi. Ayni paytda bu izning ishonchliligi cheklangan: ssenariyni boshqa o‘quvchi yozishi, tayyor shablon mazmunni yo‘naltirishi yoki texnik mahorati kuchli a’zo mahsulotni o‘z qo‘liga olishi mumkin. Shu sababli individual, treylerdan alohida baholash saqlanadi.

Nihoyat, matn treyleri darslik matni bilan ishlashning yagona usuli sifatida taklif qilinmaydi. Ayrim mavzularda tushunchalar xaritasi, jadval, qisqa yozma xulosa yoki o‘qituvchi bilan muloqot ancha maqbul bo‘lishi mumkin. Media shakli faqat o‘quv maqsadiga xizmat qilganda asosli bo‘ladi.

***Tadqiqot cheklovlari va kelgusi tadqiqot yo‘nalishi.*** Tadqiqot natijalari nazariy xususiyatga ega va quyidagi cheklovlar doirasida talqin qilinishi lozim:

taklif etilgan model empirik tekshiruvdan o‘tmagan: uning samaradorligi bo‘yicha hech qanday miqdoriy da’vo ilgari surilmaydi.

amaliy namuna bitta fan va bitta sinf doirasida – 6-sinf tarix darsligining bir parchasi misolida ishlab chiqilgan, shu bois namunaning boshqa fanlar va yosh bosqichlariga ko‘chirilishi alohida tekshirishni talab qiladi.

didaktik shartlar tizimi va baholash rubrikasi mustaqil ekspertlar tomonidan baholanmagan, ya’ni ularning mazmuniy validligi bo‘yicha ma’lumot mavjud emas.

treyler uchun mezonli rubrika, integrativ o‘qib tushunish savollari va ochiq javoblarni baholash tartibi pilot sinovdan keyin aniqlashtirilishi kerak.

Kelgusi tadqiqot rubrika va topshiriqlar mazmuniy validligi ekspert bahosi orqali tekshiriladi, pilot sinov o‘tkaziladi va o‘lchov vositasining ichki muvofiqligi hisoblanadi, nazorat guruhi ishtirokidagi shakllantiruvchi tajriba tashkil etiladi. Tajriba dizaynini o‘qib tushunish natijasini treyler sifatidan alohida o‘lchash talabini saqlashi, shuningdek kechiktirilgan o‘lchov orqali ko‘chirish samarasini tekshirishi lozim.

## XULOSA

Tadqiqot natijalari quyidagi xulosalarda jamlanadi.

1. Buktreyler metodikasi va tushuntiruvchi darslik matnini o‘qib tushunish vazifasi o‘rtasidagi ziddiyat tushunchaviy darajada hal etildi: matn treyleri o‘quvchi ajratgan etalon tushunchalar, ular o‘rtasidagi munosabatlar va umumiy xulosani qisqa kadrlar ketma-ketligida qayta ifodalovchi o‘quv mediamahsuloti sifatida ta’riflandi. Ta’rifga davomiylik, kadrlar soni hamda tushuncha va munosabatlar sonining o‘lchanadigan chegaralari kiritildi va ular kognitiv yuklama nazariyasi hamda multimedia ta’limi tamoyillari asosida asoslandi.

2. Mediatopshiriqning natijasi bitta omilga emas, o‘zaro bog‘langan shartlar tizimiga bog‘liqligi ko‘rsatildi. Uch guruhga birlashtirilgan sakkizta didaktik shart raqamlangan tizim sifatida ochib berildi; har bir shart uchun nazariy tayanch va kuzatiladigan ko‘rsatkich belgilandi, refleksiv-axloqiy guruhning axloqiy tarkibiy qismi topshiriqni amaliyotga tavsiya etish sharti darajasiga chiqarildi.

3. To‘qqiz bosqichli jarayon modeli ishlab chiqildi. Bosqichlar ketma-ketligi diagnostikaning loyihalashdan, mazmuniy qarorlarning esa texnik ijrodan oldin turishi mantiqiga bo‘ysundirildi; har bir bosqichning nazariy tayanchi va muallif qo‘shimchasi ochiq ko‘rsatildi.

4. Treyler sifati va o‘qib tushunish natijasini ajratib baholaydigan tartib asoslandi. Ikki asosiy va uch

qo‘shimcha obyekt farqlandi, birinchi asosiy obyekt uchun besh mezonli va uch darajali rubrika ishlab chiqildi, ikkinchi asosiy obyekt uchun manba matnga tayangan integrativ vazifalar tizimi taklif etildi.

**Tadqiqotning nazariy ahamiyati** ikkilamchi o‘quv matni nazariyasini raqamli mediamahsulot yo‘nalishida kengaytirishdan iborat: o‘quvchi yaratgan qisqa video mazmuniy tanlovlarning ko‘rinadigan izi sifatida talqin qilinadi va shu asosda uning didaktik chegaralari belgilanadi. Bundan tashqari, multimedia ta’limi va kognitiv yuklama nazariyalari o‘rtasidagi keskinlikni vositalar sonini emas, ularning mazmuniy vazifasini mezon qilib olish orqali hal qilish yo‘li asoslanadi.

**Tadqiqotning amaliy ahamiyati** uch yo‘nalishda namoyon bo‘ladi. O‘qituvchi uchun matn pasporti, ssenariy sxemasi va baholash rubrikasi ko‘rinishidagi tayyor ish quroli taqdim etiladi. Darslik mualliflari uchun tushuntiruvchi matnni loyihalashda etalon tushuncha va munosabatlar tarkibini oldindan belgilash zarurati asoslanadi. Malaka oshirish tizimi uchun esa mediatopshiriqni baholashda mazmuniy aniqlikni texnik sifatdan ajratishga qaratilgan modul mazmuni shakllantiriladi.

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# THE EVOLUTION OF THE ESG CONCEPT AND ITS ROLE IN THE CORPORATE GOVERNANCE OF JOINT-STOCK COMPANIES

**Abstract.** This article examines the evolution of the Environmental, Social and Governance (ESG) concept, its development from corporate social responsibility into a modern management instrument, and its role in the corporate governance of joint-stock companies. The environmental, social and governance dimensions of ESG are distinguished in terms of their substantive content. Drawing on stakeholder, agency, institutional and signaling theories, the article explains the mechanisms through which ESG may influence managerial decision-making, risk management, information transparency and long-term corporate value. Particular attention is paid to the principal challenges of ESG implementation in developing and transition economies, including weak institutional enforcement, concentrated ownership, fragmented reporting standards and divergence among ESG ratings. The article concludes by developing conceptual implications for integrating ESG into the corporate governance systems of joint-stock companies in Uzbekistan, with particular emphasis on transport enterprises.

**Keywords:** ESG, corporate governance, joint-stock company, sustainable development, ESG reporting, stakeholder theory, institutional environment, corporate performance.

## Introduction

The formation and development of joint-stock companies in the global economy gave rise to various models of corporate governance. Initially, these models were primarily designed to improve firms' financial performance, protect shareholders' interests and monitor managerial activities. Over time, however, geopolitical tensions, the unsustainable use of natural resources, environmental challenges, pandemics and socio-economic crises became increasingly prominent. At the same time, companies faced internal problems such as inefficient resource use, violations of labour rights and corporate corruption. These developments demonstrated that financial indicators alone were insufficient for evaluating corporate activity. Against this background, the ESG concept emerged as a framework for systematically assessing companies' environmental impacts, relationships with stakeholders and quality of governance (Gillan et al., 2021).

Today, ESG is no longer merely a rating or reporting metric used by investors. It is increasingly becoming a management framework that links the board of directors, executive management, risk-management systems, internal controls, strategic planning and corporate transparency policies. Nevertheless, the effect of ESG on corporate outcomes is not universal. Its impact depends on the environmental and social materiality of the industry, the institutional environment of the country, the quality of corporate governance and the reliability of disclosed information (Berg et al., 2022; Singhania & Saini, 2023).

## Research Methodology

This study employs a theoretical and analytical research design. A structured literature review, comparative analysis and qualitative content analysis of regulatory and legal documents were used to identify the theoretical relationships among ESG, corporate social responsibility and corporate governance.

The literature search used the keywords "ESG", "corporate governance", "corporate social responsibility", "joint-stock companies", "stakeholder theory", "agency theory", "institutional theory", "signaling theory" and "resource-based view", together with combinations of these terms. The review covers the period from 1973 to 2025, thereby encompassing the development of the early theoretical foundations of CSR and ESG as well as contemporary approaches to ESG governance and accountability.

Comparative analysis was used to distinguish CSR from ESG, examine the role of ESG in corporate governance, and compare the institutional characteristics of ESG integration in developed and developing economies. Through content analysis, provisions in regulatory documents related to the environmental, social and governance dimensions of ESG were identified.



A limitation of the study is that it does not conduct firm-level econometric estimation. Accordingly, its conclusions are based on theoretical analysis, a review of the literature and analysis of the content of regulatory and legal documents.

## Analysis and Results

The issue is particularly relevant for joint-stock companies in Uzbekistan. Beginning with Presidential Decree No. PF-4720 of 24 April 2015, institutional foundations were established for introducing modern corporate governance practices based on international experience, improving transparency for investors and attracting foreign investment. Presidential Decree No. PF-6096 of 27 October 2020 and the Strategy for the Management and Reform of State-Owned Enterprises for 2021–2025 set objectives for transforming large state-owned enterprises, improving operational efficiency, introducing corporate governance and financial audit practices, and privatizing state shareholdings. This process was further developed through Resolutions No. PQ-83 and PQ-101 in 2023, which emphasized the introduction of ESG principles in state-owned enterprises, the development of corporate governance in line with OECD recommendations, the recruitment of foreign and qualified managers, and improvements in corporate transparency and efficiency. In 2024–2025, efforts to reduce state participation, privatize inefficient and

non-viable enterprises, transform large state-owned enterprises, and bring their shareholdings to domestic and international capital markets were accelerated (Table 1).

**Table 1. Key Regulatory and Legal Documents Related to ESG in Uzbekistan**

| No. | Document | Relevance to the present context |
|---|---|---|
| 1 | Law No. O'RQ-370 of 6 May 2014, "On Joint-Stock Companies and Protection of Shareholders' Rights" | Establishes the legal foundations for the governing bodies of joint-stock companies, shareholder rights, supervisory boards, internal audit and information disclosure. |
| 2 | Presidential Decree No. PF-4720 of 24 April 2015, "On Measures to Introduce Modern Corporate Governance Methods in Joint-Stock Companies" | Provides for the introduction of international practices, attraction of foreign investment, greater transparency for investors, recruitment of foreign managers and reporting based on international standards. |
| 3 | Law No. O'RQ-598 of 25 December 2019, "On Investments and Investment Activity" | Regulates the rights of domestic and foreign investors, investment protection, transparency and the activities of enterprises with foreign investment. |
| 4 | Presidential Decree No. PF-6096 of 27 October 2020 | Provides for the transformation of state-owned enterprises, introduction of corporate governance and financial audit, improvement of operational efficiency and privatization of state shareholdings. |
| 5 | Cabinet of Ministers Resolution No. 166 of 29 March 2021 — Strategy for the Management and Reform of State-Owned Enterprises for 2021–2025 | Sets priorities for modern corporate governance in state-owned enterprises, reducing state participation and improving enterprise efficiency. |
| 6 | Presidential Resolution No. PQ-83 of 1 March 2023 | Provides for introducing ESG principles in the reform of major state-owned enterprises, involving the private sector, applying OECD corporate governance recommendations and recruiting foreign managers. |
| 7 | Presidential Resolution No. PQ-101 of 24 March 2023 | Establishes updated corporate governance rules for state-owned enterprises, codes of ethics, conflict-of-interest prevention, recruitment of foreign specialists and mechanisms for assessing management efficiency. |
| 8 | Law No. O'RQ-907 of 14 February 2024, "On Privatization of State Property" | Establishes the principles of transparency, accountability, equal competition and prevention of corruption in privatization. |
| 9 | Presidential Resolutions No. PQ-162 and PQ-163 of 19 April 2024 | Aim to reduce state participation, privatize inefficient enterprises, transform major state-owned enterprises and accelerate the attraction of foreign investment. |
| 10 | Presidential Decree No. PF-70 and Presidential Resolution No. PQ-145 of 21 April 2025 | Provide for reducing the number of state-owned enterprises, implementing the 2025 privatization programme and bringing major state-owned enterprises to international capital markets. |

The purpose of this article is to provide a theoretical foundation for the evolution of the ESG concept and its role in the corporate governance of joint-stock companies.

The ESG concept developed from ideas associated with corporate social responsibility, sustainable development and responsible investment. Whereas CSR was initially understood largely in terms of a company's ethical responsibility to society (Carroll, 1979; Carroll, 1991), ESG translated these responsibilities into measurable indicators relevant to investors, creditors, public authorities and other stakeholders (Jameel et al., 2025). Studies in Uzbekistan have likewise examined the historical development of corporate social responsibility, its principal definitions and the extent to which it has been studied in the national context (Raxmatov & Odilov, 2024).

The institutional emergence of the term ESG is commonly associated with the 2004 "Who Cares Wins" report prepared under the United Nations Global Compact initiative. Subsequently, the Principles for Responsible Investment, international reporting standards and the sustainable investment policies of institutional investors accelerated the incorporation of ESG into finance and corporate governance (Jameel et al., 2025).

A key distinction between ESG and CSR lies in the more direct integration of ESG considerations into corporate assessment and decision-making processes. CSR has often been implemented through social projects, philanthropy and community relations. ESG, by contrast, connects environmental and social issues with corporate strategy, risk, the cost of capital and managerial accountability.

**Table 2. Comparative Analysis of ESG-Related Approaches**

| Approach | Primary focus | Expression in corporate governance |
|---|---|---|
| CSR | Social responsibility toward society | Social projects and philanthropic programmes |
| Sustainable development | Balance among economic, environmental and social dimensions | Long-term strategic planning |
| ESG | Measurable environmental, social and governance outcomes | Board oversight, risk management and disclosure |
| Responsible investment | Incorporation of ESG factors into capital allocation | Use of ESG criteria in investor and creditor decisions |

For this reason, ESG should not be reduced to a tool for enhancing a company's external image. It requires the reconsideration of internal corporate governance mechanisms, including board oversight, managerial incentives, internal audit, risk management and reporting arrangements.

The environmental dimension (E) reflects a company's use of natural resources and its impact on the environment. It covers issues such as carbon emissions, energy consumption, water and raw-material use, waste management, environmental risks and adaptation to climate change (Jameel et al., 2025).

From the perspective of joint-stock companies, environmental matters are not solely the responsibility of production units. Boards of directors should incorporate environmental risks into strategic risk-management systems, assess the environmental implications of investment projects and establish managerial accountability for environmental indicators. In transport enterprises, this dimension is associated with energy efficiency, fuel consumption, vehicle emissions, infrastructure safety and the diversification of energy sources.

The social dimension (S) encompasses relationships with employees, customers, suppliers, local communities and other stakeholders. Its main areas include occupational safety, employee rights, gender equality, inclusion, service quality, human rights and consumer safety.

Social factors affect corporate governance through two main channels. First, they influence employee productivity, staff turnover and corporate reputation. Second, they broaden the accountability of boards and executive bodies to stakeholders. This is particularly important for passenger transport companies, where safety, convenience, service continuity and accessibility for different segments of the population constitute important dimensions of corporate performance.

The governance dimension (G) encompasses board independence, protection of shareholder rights, executive incentives, anti-corruption controls, audit, risk management, ownership structure and information transparency (Jameel et al., 2025).

The G dimension provides the institutional foundation for implementing the E and S dimensions. For example, environmental objectives may not be incorporated into operational plans unless they are approved and monitored by the board. Likewise, social and safety indicators may remain secondary unless they are integrated into managerial performance assessment. Thus, although the three ESG dimensions represent distinct areas, governance performs a coordinating role in their implementation.

The relationship between ESG and corporate governance can be explained through several theoretical perspectives (Table 3).

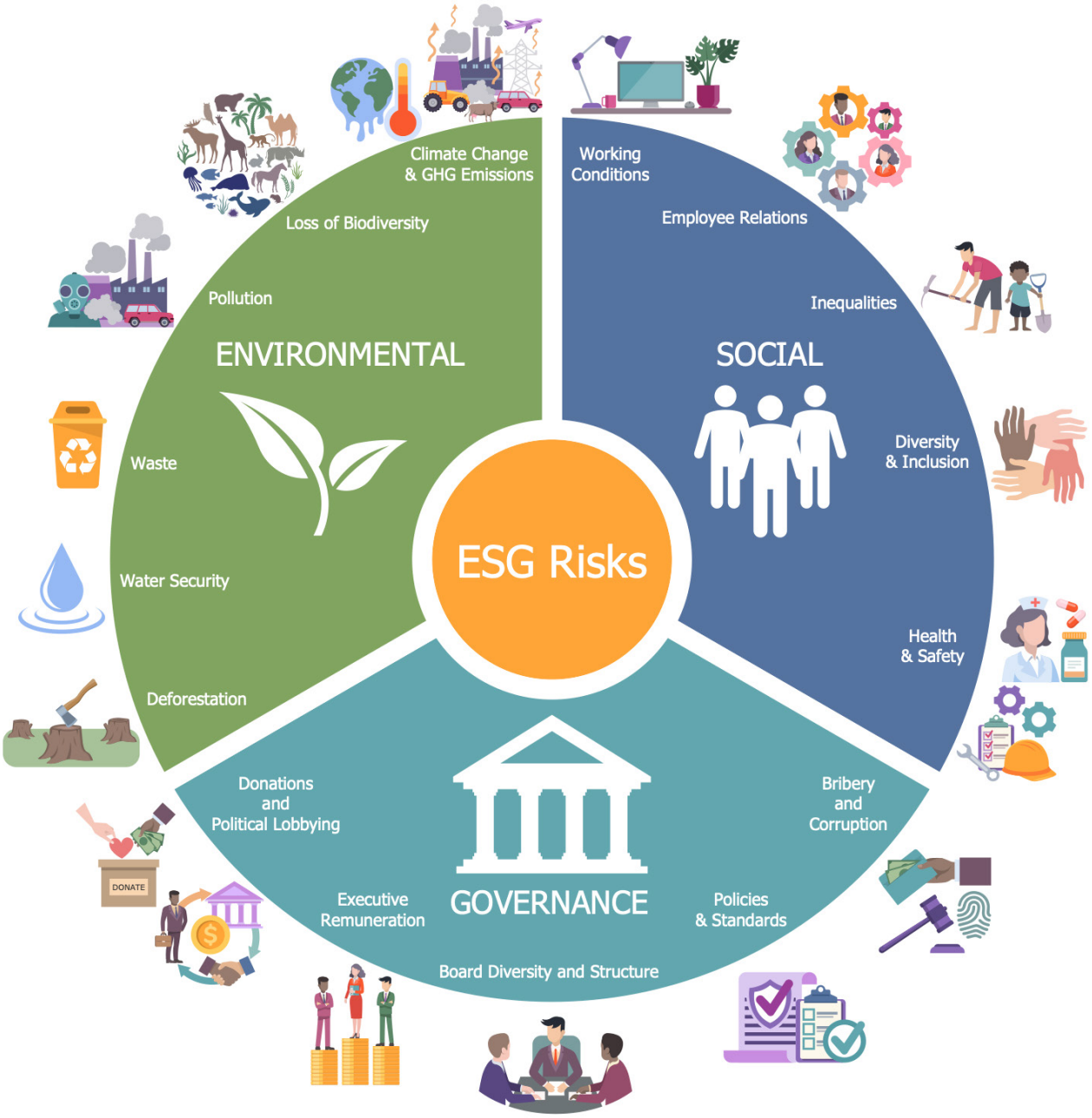
Stakeholder theory views ESG as a mechanism for managing relationships between the firm and its stakeholders. From this perspective, sustainable relationships with employees, customers, suppliers, government and local communities can contribute to improved long-term corporate outcomes (Freeman, 1984; Zhan, 2023).

**Table 3. Theoretical Foundations of ESG and Corporate Governance**

| Theory | Mechanism for explaining ESG | Implications for joint-stock companies |
|---|---|---|
| Stakeholder theory | The firm takes the interests of all stakeholders into account | Decisions are not limited solely to shareholder returns |
| Agency theory | Monitoring and incentives align managerial behaviour | Board oversight and audit systems are strengthened |
| Institutional theory (Meyer & Rowan, 1977; DiMaggio & Powell, 1983) | Firms adopt ESG under pressure from investors, government and international standards | ESG enhances institutional legitimacy |
| Signaling theory (Spence, 1973; Ross, 1977) | ESG disclosure signals firm quality to external stakeholders | Information asymmetry is reduced |
| Resource-based view (Wernerfelt, 1984; Barney, 1991) | ESG develops resources such as knowledge, reputation, innovation and human capital | Long-term competitive advantage can be created |

Agency theory explains the governance and monitoring functions of ESG. Independent directors, audit committees, well-designed incentives and transparent reporting can reduce opportunistic managerial behaviour. However, if ESG-related expenditures are not properly monitored, managers may also use ESG initiatives for image-building or to advance private interests. The positive effects of ESG therefore depend on the quality of governance and monitoring mechanisms (Jensen & Meckling, 1976).

Institutional theory helps explain why ESG develops differently across countries and industries. Companies adopt ESG practices in response to legal requirements, investor pressure, international standards and imitation of successful organizations. In developing economies, this process is often




accelerated not only by voluntary corporate initiatives but also by the requirements of international financial institutions, government policy and foreign investors (Quttainah, 2025).

The importance of ESG in corporate governance is reflected in several channels through which it may alter managerial decision-making. First, ESG can reduce information asymmetry. When a company regularly discloses its environmental, social and governance performance, investors and creditors are better able to assess corporate risks. This effect, however, depends on whether the information is reliable, comparable and subject to external assurance. Differences among ESG rating methodologies can lead different rating agencies to assign substantially different assessments to the same company (Berg et al., 2022).

Second, ESG broadens the scope of risk management. In addition to conventional financial risks, firms are required to assess environmental, social, labour-related, reputational and regulatory risks. This approach encourages corporate management to consider long-term resilience rather than focusing exclusively on short-term profit.

Third, ESG can sharpen managerial incentives and clarify the role of the board. Research suggests that board independence and the incorporation of quantitative, measurable sustainability objectives into managerial incentive systems may improve corporate sustainability performance (Minciullo et al., 2022). This finding highlights the need to translate ESG from broad declarations into specific governance indicators.

Fourth, ESG can contribute to the development of intangible corporate assets. A credible reputation, employee loyalty, innovative capacity and strong stakeholder relationships may create long-term competitive advantage (Zhan, 2023). At the same time, the effect of ESG on financial performance is not uniform across all settings. Industry materiality, the national institutional environment and the quality of publicly available information may strengthen or weaken this relationship (Gillan et al., 2021; Singhania & Saini, 2023).

ESG implementation in developing economies differs from that in developed markets because of factors such as weaker regulatory enforcement, concentrated ownership, a high degree of state participation, limited development of independent-director institutions and insufficient ESG data infrastructure (Quttainah, 2025).

Under such conditions, the existence of ESG reporting does not necessarily imply strong actual ESG performance. A company may disclose extensive information while its environmental efficiency, occupational safety or governance quality remains unchanged. It is therefore important to distinguish between two concepts: ESG disclosure, meaning the extent to which a company publishes ESG-related information; and ESG performance, meaning the actual state of its environmental, social and governance outcomes.

This distinction has particular methodological importance for research on joint-stock companies in Uzbekistan. Existing studies have sought to identify relationships between ESG disclosure and bank profitability and market value, but the coverage of data across firms and industries remains limited (Jalalov, 2025). Accordingly, research on Uzbekistan's transport enterprises should not simply replicate international rating systems; instead, it should develop an indicator framework adapted to the characteristics of the transport sector.

In transport enterprises, ESG is associated with several areas of corporate governance. The environmental dimension includes energy efficiency, fuel consumption, emissions and the environmental impact of vehicles. The social dimension includes passenger safety, service quality, inclusion, employee occupational safety and fare affordability. The governance dimension includes the balance between public and private interests, procurement transparency, audit, anti-corruption controls and reporting quality.

From this perspective, evaluating joint-stock companies such as UTY JSC, Tashkent Metro JSC, Toshshahartransxizmat JSC and Uzbekistan Airways JSC solely on the basis of market value or shareholder returns would be insufficient. Relevant outcome indicators for such enterprises also include energy consumption, cost per passenger or freight unit, service continuity, safety incidents, labour productivity, efficiency in the use of public resources and governance transparency.

This approach extends ESG beyond a financial rating intended primarily for investors and positions it as an instrument for assessing the socio-economic performance of state-owned and strategically important transport enterprises.

## Conclusion

Although the ESG concept developed from the broader ideas of corporate social responsibility and sustainable development, its contemporary scope is considerably wider. In joint-stock companies, ESG integrates environmental, social and governance considerations with board oversight, strategic planning, risk management, internal control and corporate transparency.

The article has explained the role of ESG in corporate governance through stakeholder, agency, institutional, signaling and resource-based theories. ESG may contribute to corporate performance by reducing information asymmetry, improving risk management, strengthening reputation, developing human capital and improving the conditions under which capital is accessed and allocated. However, these effects are neither automatic nor universal; they depend on the institutional environment, industry materiality, governance quality and the reliability of ESG information.

For joint-stock companies in Uzbekistan, a key challenge is to move ESG beyond formal reporting and embed it in corporate decision-making. ESG indicators should therefore be linked to board oversight, managerial incentives, risk management and annual corporate performance. In transport enterprises, ESG assessment should encompass not only environmental outcomes but also passenger safety, service quality, energy efficiency and the efficiency with which public resources are used.

On this basis, future research may develop an ESG indicator system for transport joint-stock companies in Uzbekistan, calculate an ESG index for four major companies, and examine the relationship between ESG indicators and both economic and management performance.

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# TA’LIMDA SUN’IY INTELLEKT: UNDAN FOYDALANISHNING ETIK ME’YORLARI VA AKADEMIK HALOLLIK



**Abstrakt.** Generativ sun’iy intellekt (SI) vositalarining oliy ta’limda jadal ommalashuvi o‘qitish, baholash va ilmiy faoliyat samaradorligini oshirish bilan birga akademik halollik, mualliflik, shaffoflik, ma’lumotlar maxfiyligi hamda mustaqil fikrlash bilan bog‘liq yangi etik muammolarni yuzaga keltirmoqda.

Mazkur tadqiqotning maqsadi oliy ta’limda SI’dan foydalanishning etik me’yorlari va akademik halollikni ta’minlash mexanizmlarini nazariy va empirik jihatdan baholash hamda Xalqaro Nordik Universiteti misolida institutsional siyosatni takomillashtirish bo‘yicha amaliy takliflar ishlab chiqishdan iborat. Tadqiqotda hujjatli va qiyosiy tahlil, shuningdek kesma dizayndagi miqdoriy so‘rovnoma usuli qo‘llanildi. Universitetning 11 bobdan iborat SI yo‘riqnomasi xalqaro va milliy etik doiralar bilan qiyoslandi; 318 nafar respondent - 210 talaba, 78 professor-o‘qituvchi va 30 ma’muriy xodim - ishtirokidagi so‘rovnoma 5 balli Likert shkalasi asosida tahlil qilindi.

O‘lchangan besh konstrukt bo‘yicha Kronbax alfa koeffitsiyentlari 0,87-0,91 oralig‘ida bo‘ldi. Natijalar institutsional siyosatni qo‘llab-quvvatlash (M=4,12) va akademik halollikka sodiqlik (M=3,98) yuqori ekanini, biroq SI’dan foydalanishni oshkor qilish amaliyoti ancha pastligini (M=2,91) ko‘rsatdi. Respondentlarning 65,4 foizi yo‘riqnomadan to‘liq yoki qisman xabardor, oshkorlik talabini esa professor-o‘qituvchilarning 87,2 foizi, ma’muriy xodimlarning 86,6 foizi va talabalarning 74,8 foizi qo‘llab-quvvatladi. Tadqiqot etik qadriyatlar bilan amaliy xulq-atvor o‘rtasida “qadriyat-amaliyot uzilishi” mavjudligini aniqlaydi. Xulosa sifatida, SI bo‘yicha mukammal institutsional hujjatning o‘zi yetarli emas; uning samaradorligi xabardorlik, SI savodxonligi, aniq oshkorlik mexanizmlari, baholash usullarini takomillashtirish va muntazam monitoring orqali akademik madaniyatga singdirilishiga bog‘liq.

**Kalit so‘zlar:** sun’iy intellekt etikasi, akademik halollik, generativ SI, SI savodxonligi, institutsional siyosat, oliy ta’lim.

## 1. KIRISH

Generativ sun’iy intellektning oliy ta’limga kirib kelishi ta’lim texnologiyalaridagi navbatdagi oddiy yangilik emas, balki bilim yaratish, topshiriqlarni bajarish, fikrni ifodalash, ilmiy manbalarni izlash va baholash jarayonlarini qayta tashkil etayotgan institutsional o‘zgarishdir. ChatGPT, Gemini, Claude, Copilot va boshqa generativ tizimlar qisqa vaqt ichida talabalar, professor-o‘qituvchilar hamda ma’muriy xodimlarning kundalik faoliyatiga kirib bordi. Ilmiy adabiyotlarda ushbu vositalarning individual o‘rganishni qo‘llab-quvvatlash, fikr yaratish, matnni tahrirlash va bilimga kirishni tezlashtirish imkoniyatlari bilan bir qatorda, akademik halollik, xato yoki uydirma ma’lumotlar, mualliflik, mas’uliyat va maxfiylik bilan bog‘liq xavflari ham keng muhokama qilinmoqda (Lo, 2023; Dwivedi et al., 2023; Cotton et al., 2024).

Muammoning markazida texnologiyaning o‘zi emas, undan qanday maqsadda, qaysi chegaralarda va qanday oshkorlik darajasida foydalanilayotgani turadi. Talaba topshiriqning intellektual o‘zagini mustaqil yaratib, SI’dan tahrir, g‘oya yoki tushuntirish uchun foydalansa, bunday amaliyot o‘rganishni qo‘llab-quvvatlashi mumkin. Aksincha, topshiriqni to‘liq SI’ga bajartirib, mualliflikni yashirish yoki uydirma manbalarni tekshirmasdan taqdim etish akademik natijaning ishonchliligiga putur yetkazadi. Shu sababli zamonaviy akademik halollik masalasi “SI’dan foydalanish mumkinmi yoki mumkin emasmi?” degan savoldan “qanday, qachon va qay darajada foydalanish maqbul?” degan masalaga o‘tmoqda (Perkins, 2023; Eaton, 2023).

Akademik halollikning an’anaviy asoslari - rostgo‘ylik, ishonch, adolat, hurmat, mas’uliyat va jasorat - generativ SI sharoitida o‘z dolzarbligini yo‘qotmaydi, aksincha yangi texnologik vaziyatga tatbiq etilishi kerak (ICAI, 2021). Shu bilan birga, xalqaro SI etikasi doiralari inson markazliligi, shaffoflik, hisobdorlik, adolatlilik, maxfiylik va xavfsizlik kabi tamoyillarni ilgari suradi (Floridi & Cowls, 2019; Jobin et al., 2019; UNESCO, 2021; OECD, 2019/2024). Ta’lim kontekstida ushbu ikki normativ maydon - SI etikasi va akademik halollik - bir nuqtada kesishadi: foydalanuvchi texnologiyadan foydalanganini yashirmasligi, olingan natijalarni tanqidiy tekshirishi va yakuniy akademik javobgarlikni o‘z zimmasida saqlashi kerak.

Xalqaro tajriba dastlabki taqiqlovchi yondashuvlardan shaffoflik, savodxonlik va moslashuvchan tartibga solishga asoslangan modellarga siljiyotganini ko‘rsatadi. UNESCO (2023) generativ SI’ni ta’lim va tadqiqotga inson markazli, xavfsiz va maqsadga muvofiq integratsiya qilish zarurligini ta’kidlaydi. Chan (2023) universitet miqyosidagi SI siyosati faqat taqiqlar ro‘yxati bo‘lib qolmasdan, o‘qitish, baholash, savodxonlik va institutsional boshqaruvni birlashtirishi kerakligini ko‘rsatadi. Cotton et al. (2024) esa generativ SI davrida akademik halollikni saqlash uchun baholash dizayni, ochiq ko‘rsatmalar va talabalar bilan etik muloqotni qayta ko‘rib chiqish zaruriyatini ilgari suradi.

O‘zbekiston sharoitida masala ikki sababga ko‘ra alohida dolzarb. Birinchidan, mamlakatda raqamli transformatsiya va SI’ni rivojlantirish st-



rategik davlat siyosatiga aylangan. “O‘zbekiston - 2030” strategiyasi va “Sun’iy intellekt texnologiyalarini 2030-yilga qadar rivojlantirish strategiyasi” ta’lim va boshqaruv jarayonlarida raqamli texnologiyalardan foydalanishni kengaytiradi. Ikkinchidan, O‘zbekiston Respublikasi Raqamli texnologiyalar vazirining 2026-yil 24-fevraldagi 284-mh-son buyrug‘i bilan tasdiqlangan SI yechimlaridan foydalanish bo‘yicha etika qoidalari shaffoflik, inson nazorati, javobgarlik va ma’lumotlarni himoya qilish kabi umumiy milliy talablarni shakllantirdi. Biroq milliy darajadagi umumiy normalarni universitetning kundalik ta’lim amaliyotiga aylantiruvchi aniq institutsional mexanizmlar hali muhim tadqiqot maydoni bo‘lib qolmoqda.

Mazkur tadqiqot aynan shu institutsional bo‘shliqni Xalqaro Nordik Universiteti misolida tahlil qiladi. Universitet SI’dan foydalanish bo‘yicha 11 bobdan iborat maxsus yo‘riqnomani qabul qilgan. Hujjatda talabalar, professor-o‘qituvchilar, tadqiqotchilar va ma’muriy xodimlar uchun alohida qoidalar, ruxsat etilgan va taqiqlangan foydalanish holatlari, maxfiylik, oshkorlik va javobgarlik mexanizmlari belgilangan. Biroq siyosatning mavjudligi uning amaliy samaradorligini avtomatik ravishda kafolatlamaydi. Asosiy ilmiy masala - jamoa ushbu talablarni qanchalik biladi, qabul qiladi va real xatti-harakatga aylantiradi - empirik baholashni talab qiladi.

Shundan kelib chiqib, tadqiqotning maqsadi oliy ta’limda SI’dan foydalanishning etik me’yorlari va akademik halollikni ta’minlash mexanizmlarini nazariy hamda empirik jihatdan o‘rganish, Xalqaro Nordik Universitetining institutsional tajribasini baholash va takomillashtirish yo‘nalishlarini asoslashdan iborat. Tadqiqot quyidagi savollarga javob izlaydi: (RQ1) universitetning SI yo‘riqnomasi xalqaro va milliy etik tamoyillar bilan qay darajada uyg‘un? (RQ2) universitet jamoasining SI etikasi, akademik halollik, xavflar va institutsional siyosat haqidagi qarashlari qanday? (RQ3) e’lon qilingan etik qadriyatlar bilan amaliy xulq-atvor, xususan SI’dan foydalanishni oshkor qilish o‘rtasida qanday bo‘shliq mavjud?

Tadqiqotning ilmiy yangiligi uch jihatda namoyon bo‘ladi. Birinchidan, u SI etikasi va akademik halollikni O‘zbekistonning o‘zbek tilidagi oliy ta’lim muhiti kontekstida birlashtirib tahlil qiladi. Ikkinchidan, institutsional yo‘riqnomaning mazmuni bilan universitet jamoasining amaliy xulq-atvorini bir tadqiqot doirasida o‘zaro bog‘liq holda tahlil qiladi. Uchinchidan, empirik natijalar asosida “qadriyat-amaliyot uzilishi”ni institutsional SI boshqaruvining markaziy muammosi sifatida ajratib, uni kamaytirishga qaratilgan amaliy mexanizmni taklif etadi.

## 2. ADABIYOTLAR SHARHI

### 2.1. Sun’iy intellekt etikasi: tamoyillar va ta’lim konteksti

SI etikasi texnologiyani ishlab chiqish va qo‘llash jarayonida inson qadr-qimmati, huquqlari va ijtimoiy farovonligini himoya qiluvchi normativ tamoyillar majmuasi sifatida shakllangan. Jobin et al. (2019) turli xalqaro etik qo‘llanmalarni qiyosiy tahlil qilib, shaffoflik, adolatlilik, zarar yetkazmaslik, mas’uliyat va maxfiylik singari takrorlanuvchi tamoyillarni aniqlagan. Floridi va Cowls (2019) ushbu maydonni yaxshilik qilish, zarar yetkazmaslik, avtonomiya, adolat va tushuntirib berish qobiliyati kabi tamoyillar orqali tizimlashtiradi. Bu yondashuvlar SI’ni texnik samaradorlik mezoni bilangina emas, balki uning ijtimoiy oqibatlari va inson nazoratiga mosligi nuqtai nazaridan baholash zarurligini ko‘rsatadi.

UNESCOning 2021-yildagi tavsiyanomasi SI etikasi uchun global normativ asos yaratib, inson huquqlari, xilma-xillik, adolatlilik, shaffoflik va hisobdorlikni markazga qo‘yadi. Ta’lim va ilmiy tadqiqotlar bo‘yicha 2023-yilgi yo‘riqnoma esa generativ SI bilan ishlashda yoshga moslik, ma’lumotlar himoyasi, inson agentligi va pedagogik maqsadning ustuvorligini ta’kidlaydi. OECD tamoyillari ishonchli SI’ni inson manfaatlari, shaffoflik, barqarorlik, ishonchlilik va hisobdorlik bilan bog‘laydi. Yevropa Ittifoqining AI Act hujjati esa xavfga asoslangan tartibga solish orqali ayrim ta’limga oid SI tizimlarini yuqori nazorat talab qiluvchi toifaga kiritadi. Ushbu doiralarning barchasida umumiy yadro mavjud: SI natijasi uchun yakuniy mas’uliyat insonda qoladi.

Ta’lim sohasi mazkur tamoyillarni o‘ziga xos pedagogik mezonlar bilan boyitadi. SI foydalanuvchining bilim olish jarayonini qo‘llab-quvvatlasa, uning didaktik qiymati yuqori bo‘lishi mumkin; biroq talabaning mustaqil fikrlashi, muammo yechishi yoki mualliflik mas’uliyatini almashtirsa, texnologik qulaylik pedagogik maqsad bilan ziddiyatga kirishadi. Shu sababli ta’limda SI’dan mas’uliyatli foydalanish nafaqat xavfsiz va qonuniy foydalanishni, balki talabaning mustaqil fikrlash jarayonidagi ishtirokini ham saqlashni anglatadi (Holmes et al., 2019; Selwyn, 2019).

### 2.2. Generativ SI va akademik halollikning yangi chegaralari

Akademik halollik ta’lim va ilmiy faoliyatda rostgo‘ylik, ishonch, adolat, hurmat, mas’uliyat va jasorat kabi qadriyatlarni amaliy xulq-atvorga aylantirishni anglatadi (ICAI, 2021). Generativ SI bu tamoyillarni bekor qilmaydi, biroq akademik xiyonat shakllarini murakkablashtiradi. An’anaviy plagiat boshqa muallifning tayyor matnini o‘zlashtirish bilan bog‘liq bo‘lsa, generativ model yangi, lekin talabaning o‘zi

yaratmagan matn ishlab chiqishi mumkin. Natijada “original matn” va “mustaqil akademik ish” tushunchalari bir-biridan ajralib qoladi.

Perkins (2023) yirik til modellari akademik halollik tushunchasini qayta ko‘rib chiqishni talab qiladi, chunki mavjud qoidalar matnning kelib chiqishini emas, ko‘pincha o‘xshashligini nazorat qilishga qurilganini qayd etadi. Eaton (2023) “postplagiarism” tushunchasi orqali generativ texnologiyalar davrida mualliflik, yordam va akademik mas’uliyatning an’anaviy chegaralari qayta shakllanishini ko‘rsatadi. Cotton et al. (2024) esa akademik halollikni faqat aniqlash texnologiyalariga tayanib himoya qilish yetarli emasligini, baholash va pedagogik dizaynni qayta ko‘rib chiqish zarurligini asoslaydi.

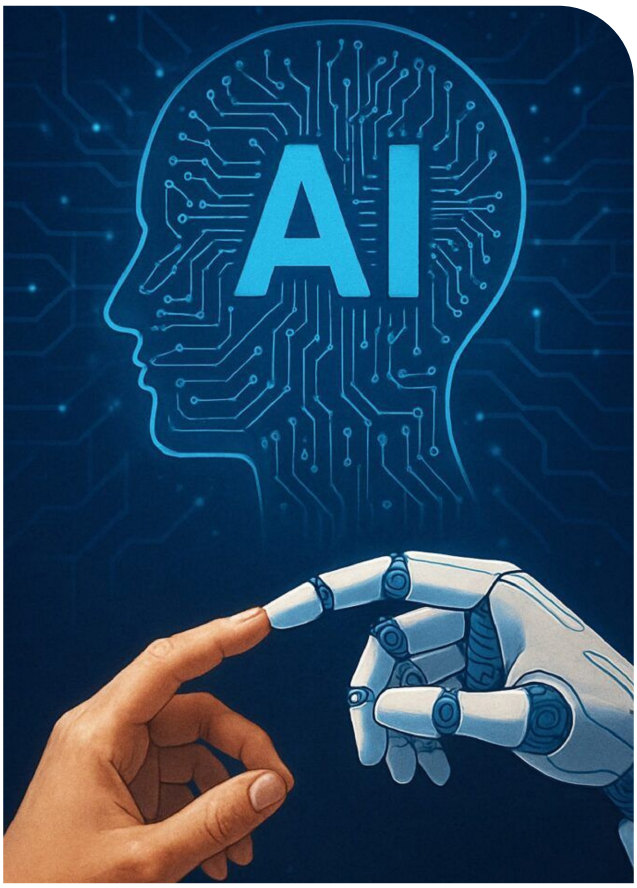
Muammoning yana bir jihati shundaki, bir xil SI vositasidan ham foydali, ham akademik halollikka zid maqsadlarda foydalanish mumkin. Masalan, matnni grammatik tahrir qilish, murakkab tushunchani izohlash yoki ilmiy qidiruvni tizimli rejalashtirishni o‘rganishni qo‘llab-quvvatlashi mumkin. Xuddi shu vosita esa imtihonda yashirin yordam olish, topshiriqni to‘liq generatsiya qilish yoki soxta adabiyotlar yaratish uchun ham qo‘llanishi mumkin. Shuning uchun SI bo‘yicha etik siyosat vosita nomiga emas, foydalanishning maqsadi, konteksti, hajmi va oshkorligiga asoslanishi lozim.

SI-detektorlar ushbu muammoni to‘liq hal qilmaydi. Ular noto‘g‘ri ijobiy va noto‘g‘ri salbiy natijalar berishi mumkinligi sababli akademik qarorlar uchun yagona dalil sifatida ishonchli emas. Bu holat faqat nazoratga tayanishdan ko‘ra, etik savodxonlik, jarayonni baholash, og‘zaki himoya, reflektiv izoh va oshkorlik kabi oldini olish choralariga ko‘proq e’tibor qaratishni talab qiladi. Natijada akademik halollik siyosati “qo‘lga tushirish” mantig‘idan “mas’uliyatli foydalanishni o‘rgatish” mantig‘iga siljiydi.

### 2.3. Institutsional SI siyosati va tadqiqot bo‘shlig‘i

Oliy ta’limda sun’iy intellektdan foydalanishni tartibga solishda uchta asosiy yondashuv shakllanmoqda. Birinchi yondashuv SI’dan foydalanishni keskin cheklashga asoslanadi. Ikkinchi yondashuv undan keng foydalanishga ruxsat beradi, biroq talaba yoki o‘qituvchi SI’dan foydalanganini ochiq ko‘rsatishi talab etiladi. Uchinchi yondashuv esa SI’dan foydalanish qoidalarini fan, topshiriq va ta’lim maqsadiga qarab belgilashni nazarda tutadi.

Hozirgi vaqtda ko‘plab universitetlar aynan uchinchi, ya’ni moslashuvchan yondashuvga o‘tmoqda. Chunki tibbiyot, dasturlash, chet tillari, iqtisodiyot yoki ijodiy fanlarda SI’dan foydalanish imkoniyatlari va cheklovlari bir xil bo‘lishi mumkin emas. Shu sababli umumiy universitet siyosati bilan bir qatorda, har bir fan va topshiriq uchun aniq foydalanish qoidalarini belgilash muhim hisoblanadi. Chan (2023)




ham SI siyosatini universitet miqyosidagi umumiy qoidalar, fan darajasidagi ko‘rsatmalar va SI’dan mas’uliyatli foydalanish bo‘yicha pedagogik savodxonlik bilan birgalikda tashkil etishni taklif qiladi.

Xorijiy universitetlar tajribasi SI’dan foydalanishni samarali boshqarish uchun bir nechta muhim qoidalar zarurligini ko‘rsatadi. Avvalo, SI’dan qaysi holatlarda foydalanish mumkinligi va qaysi holatlarda taqiqlanishi aniq belgilanishi kerak. Shuningdek, foydalanuvchi SI’dan foydalanganini ochiq ko‘rsatishi, maxfiy ma’lumotlarni himoya qilishi va o‘qituvchiga topshiriq xususiyatidan kelib chiqib foydalanish chegaralarini belgilash imkoniyati berilishi lozim.

Bundan tashqari, talabalar va o‘qituvchilarning SI savodxonligini rivojlantirish, baholashda faqat yakuniy natijaga emas, balki ish jarayoni, og‘zaki tushuntirish va talabaning shaxsiy hissasiga ham e’tibor qaratish muhimdir. SI texnologiyalari tez o‘zgarib borayotgani sababli universitet siyosati ham muntazam ravishda yangilanib turishi kerak. Bearman va boshqalar (2023) ta’kidlaganidek, oliy ta’limda SI bir tomondan katta imkoniyat sifatida, ikkinchi tomondan esa muayyan xavflar manbai sifatida qaralmoqda. Shu sababli universitetlarda SI’dan foydalanishni na to‘liq cheklaydigan, na nazoratsiz qoldiradigan, balki imkoniyat va xavflar o‘rtasidagi muvozanatni ta’minlaydigan boshqaruv tizimi zarur.

O‘zbekiston uchun muammo SI bo‘yicha umumiy normativ asoslar va universitet darajasidagi

kundalik amaliyot o‘rtasidagi masofada namoyon bo‘ladi. “Ta’lim to‘g‘risida”gi, “Shaxsga oid ma’lumotlar to‘g‘risida”gi va “Axborotlashtirish to‘g‘risida”gi qonunlar, PF-158-sonli “O‘zbekiston - 2030” strategiyasi, PQ-358-sonli SI strategiyasi hamda 284-mh-son etika qoidalari institutlar uchun umumiy huquqiy va etik yo‘nalishni belgilaydi. Biroq ushbu tamoyillarni topshiriq, sillabus, ilmiy ish, xizmat hujjati va ma’lumotlarni qayta ishlash darajasiga tushiruvchi amaliy mexanizmlar muassasa tomonidan ishlab chiqilishi kerak.

Mavjud tadqiqotlarning katta qismi ingliz tilidagi va G‘arb universitetlari kontekstiga tegishli. O‘zbek tilidagi akademik muhit, mahalliy normativ talablar, xususiy va xalqaro yo‘naltirilgan universitetlarning rivojlanishi hamda SI vositalaridan foydalanish tezligining etik savodxonlikdan ilgarilab ketishi mahalliy empirik tadqiqotlarga ehtiyoj tug‘diradi. Shu sababli ushbu maqola uchun asosiy tadqiqot bo‘shlig‘i - muassasa siyosatining normativ sifati bilan universitet jamoasining xabardorligi, qadriyatlari va amaliy xulq-atvori o‘rtasidagi bog‘liqlikning O‘zbekiston kontekstida yetarlicha empirik baholanmaganidir.

**1-jadval**

**Tadqiqotning konseptual doirasi**

| Tamoyil / yo‘nalish | Nazariy mazmun | Universitet amaliyotidagi ifodasi |
|---|---|---|
| Inson markazliligi | SI insonning agentligi va ta’lim maqsadlarini qo‘llab-quvvatlaydi | SI yordamchi vosita; talabaning mustaqil fikrlashi saqlanadi |
| Shaffoflik | SI ishtiroki yashirilmaydi | Foydalanilgan vosita va qo‘llangan qism oshkor qilinadi |
| Mas’uliyat | Yakuniy javobgarlik foydalanuvchida qoladi | SI natijalari mustaqil tekshiriladi |
| Maxfiylik | Shaxsiy va xizmat ma’lumotlari himoyalanadi | Maxfiy ma’lumot ochiq platformaga yuklanmaydi |
| Akademik halollik | Mualliflik va mustaqil intellektual hissa saqlanadi | Topshiriqni SI’ga to‘liq bajartirish va yashirish taqiqlanadi |
| SI savodxonligi | Imkoniyat va cheklovlarni tushunish | Trening, fan darajasidagi qoidalar va tanqidiy tekshiruv |

## 3. METODOLOGIYA

Tadqiqot amaliy yo‘naltirilgan institutsional holat tahlili (case study) asosida olib borildi. Unda ikki asosiy usul birgalikda qo‘llanildi: birinchisi - hujjatlarni o‘rganish va qiyosiy tahlil qilish, ikkinchisi esa respondentlar o‘rtasida miqdoriy so‘rovnoma o‘tkazish.

Ushbu yondashuv universitetda qabul qilingan me’yoriy hujjatlarda qanday talablar belgilanganini hamda talabalar va xodimlar bu talablarni qanchalik bilishi, qabul qilishi va amalda ularga rioya etishini o‘zaro taqqoslash imkonini beradi. Shu orqali rasmiy siyosat bilan real amaliyot o‘rtasidagi mavjud tafovutni aniqlash mumkin.

Hujjatli tahlilda Xalqaro Nordik Universitetining “Sun’iy intellektdan foydalanish tartib-qoidalari to‘g‘risidagi yo‘riqnoma”si asosiy birlamchi manba sifatida o‘rganildi. Yo‘riqnomaning 11 bobi mazmunan kodlanib, besh asosiy mezon bo‘yicha tahlil qilindi: akademik halollik, mas’uliyat va inson nazorati, maxfiylik, ochiqlik/shaffoflik hamda qonunchilikka muvofiqlik. Mazkur elementlar UNESCO, OECD, ICAI/ENAI, EU AI Act yondashuvlari va O‘zbekistonning 284-mh-son etika qoidalaridagi tamoyillar bilan qiyoslandi.

Empirik qismda 318 nafar respondent ishtirok etdi. Tanlov tarkibiga 210 nafar talaba (66,0%), 78 nafar professor-o‘qituvchi (24,5%) va 30 nafar ma’muriy xodim (9,5%) kiritildi. Respondentlarning 186 nafari (58,5%) ayol va 132 nafari (41,5%) erkak bo‘lgan. SI’dan foydalanish tajribasi bo‘yicha 121 respondent (38,1%) bir yildan kam, 142 respondent (44,6%) 1-2 yil, 55 respondent (17,3%) esa ikki yildan ortiq tajribaga ega bo‘lgan. Tanlov universitetning turli fakultet va bo‘linmalaridan qatlamli tasodifiy usulda shakllantirildi.

Ma’lumotlar elektron so‘rovnoma orqali ixtiyoriy va anonim tarzda yig‘ilgan. So‘rovnoma demografik blokdan tashqari jami 19 ta Likert tipidagi savoldan iborat bo‘lib, besh konstruktni o‘lchagan: SI etik me’yorlaridan xabardorlik (4 savol), akademik halollikka sodiqlik (4 savol), SI bilan bog‘liq xavflarni idrok etish (4 savol), SI’dan foydalanishni oshkor qilish amaliyoti (3 savol) va institutsional siyosatni qo‘llab-quvvatlash (4 savol). Javoblar 1 - “mutlaqo qo‘shilmayman”dan 5 - “mutlaqo qo‘shilaman”gacha bo‘lgan shkala asosida baholangan.

O‘lchov vositasining ichki ishonchliligi Kronbax alfa koeffitsiyenti orqali baholangan. Barcha konstruktlarda $\alpha$=0,87-0,91 oralig‘idagi qiymatlar kuzatilgan, bu savollar o‘rtasida yuqori ichki uyg‘unlik mavjudligini ko‘rsatadi. Tahlilda tavsifiy statistika - o‘rtacha qiymat (M), standart chetlanish (SD), foiz taqsimotlari - va maqom bo‘yicha guruhlararo qiyoslash qo‘llanildi. Ushbu tadqiqotda inferensial statistik testlar qo‘llanmagani sababli, ushbu maqolada guruhlararo farqlar statistik ahamiyatli deb talqin qilinmaydi; ular tavsifiy tendensiya sifatida izohlanadi.

Etik nuqtai nazardan, so‘rovnoma ixtiyoriy va anonim ishtirok asosida tashkil etilgan. Shaxsiy identifikatsiya qiluvchi ma’lumotlarni tahlil qilish mazkur maqolaning maqsadiga kirmaydi. Tadqiqot dizayni siyosat hujjatining normativ mazmunini respondentlarning subyektiv qarashlari bilan bog‘laydi; shu sababli natijalar “institutsional holatni empirik baholash” sifatida talqin qilinadi.

**2-jadval**
**Respondentlarning demografik tavsifi (N=318)**

| Ko‘rsatkich | Guruh | Soni | Ulush, % |
|---|---|---|---|
| Maqom | Talabalar | 210 | 66,0 |
| Maqom | Professor-o‘qituvchilar | 78 | 24,5 |
| Maqom | Ma’muriy xodimlar | 30 | 9,5 |
| Jins | Ayol | 186 | 58,5 |
| Jins | Erkak | 132 | 41,5 |
| SI tajribasi | 1 yildan kam | 121 | 38,1 |
| SI tajribasi | 1-2 yil | 142 | 44,6 |
| SI tajribasi | 2 yildan ortiq | 55 | 17,3 |

# 4. NATIJALAR

## 4.1. Institutsional yo‘riqnomaning hujjatli tahlili

Xalqaro Nordik Universitetining SI’dan foydalanish bo‘yicha yo‘riqnomasi 11 bobdan iborat bo‘lib, umumiy qoidalar, asosiy tushunchalar, foydalanish tamoyillari, professor-o‘qituvchilar, talabalar, tadqiqotchilar va ma’muriy xodimlar uchun alohida qoidalar, ruxsat etilgan va taqiqlangan platformalar, oshkorlik, javobgarlik va yakuniy qoidalarni qamrab oladi. Hujjatning strukturaviy kuchli tomoni - foydalanuvchi guruhlari bo‘yicha differensiallashgan mas’uliyatni aniq belgilashidir. Talabalar uchun mustaqil o‘rganish va akademik halollik, professor-o‘qituvchilar uchun pedagogik mas’uliyat va baholash xolisligi, tadqiqotchilar uchun ilmiy halollik va ma’lumotlar himoyasi, ma’muriy xodimlar uchun esa xizmat ma’lumotlari maxfiyligi ustuvor vazifa sifatida qo‘yilgan.

Yo‘riqnomaning besh asosiy tamoyili - akademik halollik, halollik va mas’uliyat, maxfiylik, ochiqlik va shaffoflik, qonunchilikka muvofiqlik - xalqaro va milliy etik doiralar bilan mazmunan uyg‘un. Hujjat shaffoflikni umumiy deklaratsiya sifatida emas, amaliy talab sifatida ifodalaydi: SI ishtirokida tayyorlangan ishda vosita nomi, SI yordamida bajarilgan qism va natijalar muallif tomonidan mustaqil tekshirilgani ko‘rsatilishi kerak. Bu mexanizm tamoyilni amaliy qoidaga aylantirgani bilan ahamiyatli.

Ruxsat etilgan va taqiqlangan foydalanish holatlari ham aniq ajratilgan. Matnni tahrirlash, g‘oya ishlab chiqish, manba izlash, murakkab mavzuni tushuntirish va konspektlash kabi yordamchi amaliyotlar maqbul deb ko‘riladi. Topshiriqni to‘liq SI’ga bajartirib o‘z nomidan topshirish, imtihonda yashirin foydalanish, maxfiy ma’lumotlarni ochiq platformaga yuklash, soxta manba yaratish va SI’dan foydalanganini yashirish esa taqiqlangan. Mazkur farqlash SI’ni “o‘rganishni qo‘llab-quvvatlovchi vosita” sifatida saqlab qoladi, biroq uni “talaba o‘rniga bajaruvchi” vositaga aylantirishni cheklaydi.

Javobgarlik qismida qoidabuzarlik darajasiga mutanosib choralar - ogohlantirishdan akademik halollik komissiyasiga yuborishgacha - nazarda tutilgan. Hujjat har bir holatni xolislik va adolat asosida alohida ko‘rib chiqishni belgilashi jazolovchi va tarbiyaviy yondashuv o‘rtasida muvozanat yaratadi. Umuman, hujjatli tahlil yo‘riqnomaning mazmuni va me’yoriy tuzilishi yetarlicha keng qamrovli ekanini ko‘rsatadi. Shunga qaramay, hujjatning haqiqiy samaradorligi foydalanuvchilar uni qanchalik bilishi va amalda bajarishiga bog‘liq.

**3-jadval**
**Universitet yo‘riqnomasining asosiy amaliy mexanizmlari**

| Yo‘nalish | Yo‘riqnomadagi mexanizm | Kutiladigan etik natija |
|---|---|---|
| Shaffoflik | SI vositasi va undan foydalanilgan qismni ko‘rsatish | Mualliflik va yordam chegarasini aniqlashtirish |
| Mas’uliyat | SI natijasini foydalanuvchi mustaqil tekshiradi | Uydirma yoki xato natija uchun javobgarlikni saqlash |
| Maxfiylik | Shaxsiy va xizmat ma’lumotlarini ochiq platformaga yuklamaslik | Ma’lumotlar xavfsizligini ta’minlash |
| Akademik halollik | Topshiriqni to‘liq SI’ga bajartirishni cheklash | Mustaqil intellektual hissani saqlash |
| Moslashuvchanlik | Foydalanuvchi guruhi va faoliyat turiga qarab qoidalar | Kontekstga mos va tushunarli boshqaruv |

## 4.2. SI’dan foydalanish chastotasi va yo‘riqnomadan xabardorlik

So‘rovnoma natijalari SI vositalari universitet jamoasining kundalik faoliyatiga chuqur kirib kelganini ko‘rsatadi. Talabalarning 61,4 foizi va professor-o‘qituvchilarning 52,6 foizi SI’dan har kuni yoki haftada bir necha marta foydalanishini bildirgan. Har kuni foydalanish talabalarda 34,3 foiz, professor-o‘qituvchilarda esa 21,8 foizni tashkil qilgan. Bu ko‘rsatkichlar SI etikasi universitet uchun nazariy yoki kelajakdagi masala emas, balki allaqachon mavjud amaliy boshqaruv masalasi ekanini tasdiqlaydi.

Yo‘riqnomadan xabardorlik esa foydalanish intensivligiga nisbatan pastroq. Respondentlarning 65,4 foizi hujjatdan to‘liq yoki qisman xabardor, 22,0 foizi u haqida eshitgan, biroq o‘qib chiqmagan, 12,6 foizi esa umuman xabarsiz. Maqom bo‘yicha tafovut aniq: professor-o‘qituvchilarning 82,1 foizi va ma’muriy xodimlarning 80,0 foizi yo‘riqnomadan to‘liq yoki qisman xabardor bo‘lsa, talabalarda bu ko‘rsatkich 59,5 foizni tashkil etadi. Talabalarning 14,8 foizi yo‘riqnomadan butunlay xabarsiz bo‘lib, bu uch guruh ichidagi eng yuqori xabarsizlik darajasidir.

Mazkur natija siyosatni qabul qilish va siyosatni joriy etish o‘rtasidagi muhim farqni ko‘rsatadi. Universitetda batafsil yo‘riqnoma mavjud, biroq foydalanuvchilarning sezilarli qismi uning mazmunini yetarli darajada o‘zlashtirmagan. Ayniqsa SI’dan eng faol

foydalanayotgan talabalar orasida xabardorlik nisbatan pastligi institutsional xavfni oshiradi.

**4-jadval**

**Yo‘riqnomadan xabardorlik darajasi (maqom bo‘yicha)**

| Xabardorlik darajasi | Talabalar, % | Professor-o‘qituvchilar, % | Ma’muriy xodimlar, % |
|---|---|---|---|
| To‘liq yoki qisman xabardor | 59,5 | 82,1 | 80,0 |
| Eshitgan, lekin o‘qimagan | 25,7 | 12,8 | 13,3 |
| Xabarsiz | 14,8 | 5,1 | 6,7 |

### 4.3. Asosiy konstruktlar: qadriyatlar, xabardorlik va oshkorlik

Besh asosiy konstruktning tavsifiy statistikasi institutsional muhitda etik qadriyatlar ijobiy qabul qilinganini ko‘rsatadi. Eng yuqori o‘rtacha qiymat institutsional siyosatni qo‘llab-quvvatlashda qayd etilgan ($M=4,12$; $SD=0,86$; $\alpha=0,91$). Akademik halollikka sodiqlik ham yuqori ($M=3,98$; $SD=0,91$; $\alpha=0,89$). SI bilan bog‘liq xavflarni idrok etish M=3,67, etik me’yorlardan xabardorlik M=3,42 darajasida. Biroq SI’dan foydalanishni oshkor qilish amaliyoti M=2,91 bilan barcha konstruktlar ichida eng past natijani ko‘rsatgan.

Natijalar shuni ko‘rsatadiki, respondentlar universitetdagi qoidalar va akademik halollik tamoyillarini yuqori darajada qo‘llab-quvvatlaydi. Biroq bu munosabat SI’dan kundalik foydalanishda har doim ham amaliy xatti-harakatga aylanmayapti. Ayniqsa, SI’dan foydalanganini ochiq ko‘rsatish darajasi nisbatan past. Ushbu holatni “qadriyat–amaliyot uzilishi” deb izohlash mumkin. Ya’ni respondentlar akademik halollikni muhim deb hisoblasalar-da, SI’dan foydalanganini muntazam ravishda oshkor qilish amaliyoti bunga to‘liq mos kelmaydi.

Shu bilan birga, barcha konstruktlarda Kronbax alfa koeffitsiyentlarining 0,87 dan yuqori bo‘lishi o‘lchov bloklarining ichki barqarorligini ko‘rsatadi. Bu natija past oshkorlik darajasi faqat ayrim savollarga berilgan tasodifiy javoblar bilan bog‘liq emasligini, balki bir nechta savolda izchil kuzatilgan umumiy tendensiyani aks ettirishini ko‘rsatadi.

**5-jadval**

**Asosiy konstruktlarning tavsifiy statistikasi (N=318)**

| Konstrukt | M | SD | Cronbach α |
|---|---|---|---|
| Institutsional siyosatni qo‘llab-quvvatlash | 4,12 | 0,86 | 0,91 |
| Akademik halollikka sodiqlik | 3,98 | 0,91 | 0,89 |
| SI bilan bog‘liq xavflarni idrok etish | 3,67 | 0,98 | 0,88 |
| SI etik me’yorlaridan xabardorlik | 3,42 | 1,07 | 0,90 |
| SI’dan foydalanishni oshkor qilish amaliyoti | 2,91 | 1,18 | 0,87 |

### 4.4. SI’dan foydalanish usullari va u bilan bog‘liq xavflar

Respondentlar SI’dan yordamchi maqsadda foydalanish bilan mustaqil akademik faoliyatni almashtiruvchi foydalanish o‘rtasidagi etik chegarani, umuman olganda, to‘g‘ri farqlagan. Matnni tahrirlashni 88,4 foiz, g‘oyalar ishlab chiqishni 79,2 foiz, manba qidirishni 74,5 foiz va murakkab mavzu bo‘yicha tushuntirish olishni 71,1 foiz respondent maqbul deb baholagan. Buning aksicha, insho yoki kurs ishini SI’ga to‘liq yozdirish faqat 9,7 foiz, imtihonda foydalanish esa 4,7 foiz respondent tomonidan maqbul deb topilgan.

Akademik halollik xavflari ichida eng yuqori ulush soxta manba va havolalar yaratishga berilgan (76,4%). Keyingi o‘rinlarda topshiriqni SI bilan to‘liq bajartirish (72,0%) va mustaqil fikrlashning susayishi (68,6%) turadi. Bu natijalar respondentlar xavfni faqat “plagiat” yoki “qoidabuzarlik” sifatida emas, bilimning ishonchliligi va sifati - ishonchli manba va mustaqil tafakkur - bilan ham bog‘layotganini ko‘rsatadi.

Oshkorlik talabining tamoyil sifatida qo‘llab-quvvatlanishi ham yuqori. Professor-o‘qituvchilarning 87,2 foizi, ma’muriy xodimlarning 86,6 foizi va talabalarning 74,8 foizi SI’dan foydalanilganini ko‘rsatish talabini qo‘llab-quvvatlaydi. Demak, oshkorlikning past amaliy darajasini talabning prinsipial rad etilishi bilan tushuntirish qiyin. Aksincha, mavjud ma’lumotlar ushbu tafovut xabardorlik darajasi, amaliy ko‘nikmalar, yagona oshkorlik shaklining yetarlicha joriy etilmaganligi va SI’dan foydalanganini tan olish bilan bog‘liq psixologik noqulaylik kabi omillar ta’sirida yuzaga kelishi mumkinligini ko‘rsatadi.

**6-jadval**

**SI foydalanish ssenariylari va xavflarning idrok etilishi**

| Ko‘rsatkich | Natija, % |
|---|---|
| Matnni tahrirlashni maqbul deb baholaganlar | 88,4 |
| G‘oya ishlab chiqishni maqbul deb baholaganlar | 79,2 |
| Manba qidirishni maqbul deb baholaganlar | 74,5 |
| Tushuntirish olishni maqbul deb baholaganlar | 71,1 |
| Insho/kurs ishini to‘liq SI’ga yozdirishni maqbul deb baholaganlar | 9,7 |
| Imtihonda SI’dan foydalanishni maqbul deb baholaganlar | 4,7 |
| Soxta manba/havolani jiddiy xavf deb baholaganlar | 76,4 |
| Topshiriqni SI’ga to‘liq bajartirishni jiddiy xavf deb baholaganlar | 72,0 |
| Mustaqil fikrlash susayishini jiddiy xavf deb baholaganlar | 68,6 |

# 5. DISKUSSIYA

### 5.1. Asosiy topilmalarni ilmiy talqin qilish

Tadqiqot natijalari Xalqaro Nordik Universitetida SI etikasi va akademik halollik uchun normativ baza shakllanganini, biroq siyosatning amaliy singdirilishi bir xil darajada kechmayotganini ko‘rsatadi. Bir tomondan, institutsional siyosatni qo‘llab-quvvatlash va akademik halollikka sodiqlik yuqori. Ikkinchi tomondan, oshkorlik amaliyoti o‘rta darajadan past. Ushbu qarama-qarshilik institutsional boshqaruv nuqtai nazaridan muhim: muammo qadriyatlarning mavjud emasligida emas, ularni kundalik amaliyotga o‘tkazuvchi mexanizmlarning yetarli darajada standartlashmaganida.

Bu holat generativ SI siyosatini faqat normativ hujjat yaratish vazifasi sifatida ko‘rish yetarli emasligini ko‘rsatadi. Chan (2023) ta’kidlaganidek, SI siyosati ta’lim dizayni, savodxonlik va institutsional qo‘llab-quvvatlash bilan integratsiyalashgandagina samarali bo‘ladi. Mazkur tadqiqot bu tezisni mahalliy kontekstda qo‘llab-quvvatlaydi: universitetda batafsil yo‘riqnoma bor, ammo talabalarning 40,5 foizi hujjatdan to‘liq/qisman xabardor guruhga kirmaydi; aynan talabalar esa SI’dan eng faol foydalanayotgan guruhdir. Shunday qilib, “siyosatning mavjudligi” va “siyosatning amaliyotga singdirilishi” tushunchalarini ajratish zarur.

Oshkorlikning pastligi alohida tahlilni talab qiladi. SI’dan foydalanganini ko‘rsatish akademik shaffoflikning amaliy ko‘rinishi bo‘lib, u foydalanuvchini jazolash uchun emas, o‘qituvchiga talabaning mustaqil intellektual hissasini to‘g‘ri baholash imkonini berish uchun xizmat qiladi. UNESCO (2023), akademik halollik bo‘yicha zamonaviy yondashuvlar va ilmiy nashriyot amaliyoti SI ishtirokini oshkor qilishni hisobdorlik mexanizmi sifatida ilgari surmoqda. Tadqiqotda oshkorlik talabining barcha guruhlar tomonidan yuqori darajada qo‘llab-quvvatlanishi, biroq amaliyotning M=2,91 bo‘lishi oshkorlik talabini qo‘llab-quvvatlashning o‘zi amaliy xatti-harakatni o‘zgartirish uchun yetarli emasligini ko‘rsatadi.

“Qadriyat–amaliyot uzilishi”ni uchta asosiy sabab bilan izohlash mumkin. Birinchidan, ayrim foydalanuvchilar SI’dan foydalanganini qachon va qanday ko‘rsatish kerakligini yetarlicha bilmasligi mumkin. Ikkinchidan, barcha fan va topshiriqlar uchun yagona, sodda oshkorlik shakli mavjud bo‘lmasa, bu talab foydalanuvchilar tomonidan ortiqcha rasmiyatchilik sifatida qabul qilinishi mumkin. Uchinchidan, universitet muhitida SI’dan foydalanganini ko‘rsatish qoidabuzarlikni tan olish emas, balki akademik shaffoflik va mas’uliyatning bir qismi sifatida qaralishi lozim.

### 5.2. Baholash usullari, SI savodxonligi va akademik halollik

Tadqiqot natijalari nazorat va aniqlashga haddan tashqari tayanishdan ko‘ra, baholashni qayta loyihalash zarurligini ham ko‘rsatadi. Talabalar SI’dan tez-tez foydalanayotgan sharoitda uyda bajariladigan umumiy esse yoki standart nazariy topshiriqlarni SI yordamida to‘liq bajarish osonlashadi. Bunday vaziyatda akademik halollikni faqat SI-detektorlar orqali nazorat qilish barqaror yechim emas. Cotton et al. (2024) va generativ SI bo‘yicha kengroq pedagogik adabiyotlar baholashni jarayonga, refleksiyaga va talabaning og‘zaki asoslashiga yaqinlashtirishni taklif qiladi.

Xalqaro Nordik Universiteti uchun bu yondashuv amaliy jihatdan bir necha shaklga ega bo‘lishi mumkin: topshiriqning bosqichma-bosqich topshirilishi, ishning dastlabki variantlari, qisqa og‘zaki himoya, ishlatilgan promptlar yoki SI’dan foydalanish haqida qisqa ma’lumot, shaxsiy/amaliy misol asosidagi tahlil va natijani mustaqil tekshirish talabi. Bunday dizayn SI’ni taqiqlamaydi, biroq talabaning intellektual hissasini ko‘rinadigan qiladi. Bu muhim, chunki respondentlarning 68,6 foizi SI’ga ortiqcha tayanish mustaqil fikrlashni susaytirishini jiddiy xavf deb bilgan.

SI savodxonligi ham texnik prompt yozish ko‘nikmasi bilan cheklanmasligi kerak. U kamida to‘rtta ko‘nikmani qamrab olishi lozim: modelning imkoniyat va cheklovlarini tushunish; natijalarning to‘g‘riligini va foydalanilgan manbalarni tekshirish; ma’lumotlar maxfiyligini saqlash; SI yordamining akademik ishda qanchalik va qanday oshkor qilinishini bilish. Tadqiqotdagi etik xabardorlikning M=3,42 darajasida qolishi aynan ushbu ko‘nikmalarni tizimli rivojlantirish zarurligini ko‘rsatadi.

Professor-o‘qituvchilar uchun SI savodxonligi ikki karra ahamiyatga ega: ular bir vaqtning o‘zida SI foydalanuvchisi hamda talabaning undan foydalanish chegaralarini belgilovchi o‘qituvchidir. O‘qituvchi SI’dan foydalanish bo‘yicha topshiriq darajasida noaniq ko‘rsatma bersa, hatto kuchli institutsional yo‘riqnoma ham real baholash vaziyatida yetarlicha ishlamaydi. Shu bois sillabuslarda SI siyosati bo‘yicha standart bo‘lim va har bir yirik topshiriqda “ruxsat etilgan SI yordami” ko‘rsatmasi bo‘lishi maqsadga muvofiq.

### 5.3. Institutsional boshqaruv uchun taklif etilayotgan mexanizm

Empirik natijalar va hujjatli tahlil asosida institutsional SI boshqaruvini oltita o‘zaro bog‘liq bosqichdan iborat uzluksiz sikl sifatida ko‘rish taklif etiladi: siyosatni belgilash → xabardorlikni ta’minlash → SI savodxonligini rivojlantirish → oshkorlikni standartlashtirish → baholash usullarini moslashtirish → monitoring va qayta ko‘rib chiqish. Mazkur siklning afzalligi shundaki, u siyosat hujjatini yakuniy mahsulot emas, boshqaruv jarayonining boshlang‘ich nuqtasi sifatida talqin qiladi.

Birinchi bosqichda umumiy etik va huquqiy qoidalar saqlanadi va muntazam yangilanadi. Ikkin-

chi bosqichda hujjat har semestr boshida barcha manfaatdor guruhlarga qisqa, foydalanuvchi uchun qulay formatda yetkaziladi. Uchinchi bosqichda talabalar va xodimlar uchun SI savodxonligi modullari tashkil etiladi. To‘rtinchi bosqichda barcha yozma topshiriqlarda SI’dan foydalanishni ko‘rsatish uchun yagona va sodda shakl joriy qilinadi. Beshinchi bosqichda SI yordamida to‘liq bajarilish ehtimoli yuqori topshiriqlar qayta ko‘rib chiqiladi. Oltinchi bosqichda xabardorlik, oshkorlik, qoidabuzarliklar, foydalanuvchi tajribasi va yangi texnologik xatarlar bo‘yicha davriy monitoring amalga oshiriladi.

Ushbu model Xalqaro Nordik Universiteti doirasida ishlab chiqilgan tavsiyalarni tizimlashtiradi, biroq boshqa O‘zbekiston OTMlari uchun ham moslashtirilishi mumkin. Ayniqsa, 284-mh-son milliy etika qoidalari umumiy normativ ramka sifatida qabul qilinib, har bir OTM ushbu ramkani o‘z ta’lim modeli, fanlar xususiyati va axborot xavfsizligi imkoniyatlariga mos institutsional mexanizmlarga aylantirishi mumkin.

**7-jadval**

**Taklif etilayotgan “Institutsional SI va akademik halollik sikli”**

| Bosqich | Asosiy harakat | Monitoring ko‘rsatkichi |
|---|---|---|
| 1. Siyosat | SI bo‘yicha umumiy qoidalarni belgilash va yangilash | Hujjatning yangilangan sanasi va qamrovi |
| 2. Xabardorlik | Semestr boshida majburiy tanishtirish | Yo‘riqnomadan xabardorlar ulushi |
| 3. SI savodxonligi | Talaba va xodimlar uchun trening/modul | Trening qamrovi va bilim natijalari |
| 4. Oshkorlik | SI’dan foydalanishni ko‘rsatish uchun yagona shakl | Oshkorlikka rioya qilish darajasi |
| 5. Baholash usullari | Bosqichma-bosqich baholash, og‘zaki himoya va talabaning mustaqil hissasini ko‘rsatadigan topshiriqlar | Qayta ko‘rib chiqilgan topshiriqlar ulushi |
| 6. Monitoring | So‘rov, qayta aloqa va davriy audit | Qadriyat-amaliyot uzilishi dinamikasi |

### 5.4. Tadqiqot cheklovlari va keyingi izlanishlar

Natijalarni talqin qilishda bir necha cheklovni hisobga olish zarur. Birinchidan, tadqiqot bitta universitetda o‘tkazilgan; shu sababli natijalarni O‘zbekiston oliy ta’lim tizimining barcha turlariga avtomatik umumlashtirish mumkin emas. Xalqaro Nordik Universitetining xususiy, xalqaro yo‘naltirilgan va raqamli amaliyotga faol universitet sifatidagi xususiyatlari boshqa OTMlardan farq qilishi mumkin.

Ikkinchidan, so‘rovnoma o‘z-o‘zini baholashga asoslangan. Akademik halollik normativ jihatdan ijobiy qadriyat bo‘lgani uchun respondentlarda ijtimoiy maqbul javob berish moyilligi bo‘lishi ehtimoli mavjud. Shu sababli “sodiqlik” ko‘rsatkichini bevosita real xulq-atvor o‘lchovi sifatida qabul qilish kerak emas. Aksincha, aynan oshkorlik amaliyotining pastroq natijasi normativ fikr va amaliy xatti-harakat o‘rtasidagi tafovutni ochishga yordam beradi.

Uchinchidan, tadqiqot kesma dizaynda bo‘lib, siyosat joriy etilishining vaqt bo‘yicha ta’sirini baholamaydi. Keyingi izlanishlarda longitudinal dizayn, bir necha universitetlar o‘rtasidagi qiyosiy tadqiqot, fokus-guruh va chuqurlashtirilgan intervyular, shuningdek inferensial tahlil yordamida xabardorlik, savodxonlik, institutsional qo‘llab-quvvatlash va oshkorlik xulq-atvori o‘rtasidagi bog‘liqlikni sinash maqsadga muvofiq.

## 6. XULOSA

Mazkur tadqiqot oliy ta’limda generativ SI’dan foydalanish etikasi va akademik halollikni institutsional boshqaruv masalasi sifatida tahlil qildi. Nazariy tahlil shuni ko‘rsatadiki, zamonaviy yondashuv SI’ni to‘liq taqiqlashga emas, inson markazliligi, shaffoflik, mas’uliyat, maxfiylik, akademik halollik va SI savodxonligiga tayangan moslashuvchan boshqaruvga asoslanmoqda. O‘zbekistonning shakllanayotgan normativ bazasi ushbu tamoyillarni milliy darajada qo‘llab-quvvatlaydi, biroq real samaradorlik muassasa darajasidagi amaliy mexanizmlarga bog‘liq.

Xalqaro Nordik Universitetining 11 bobli SI yo‘riqnomasi hujjatli tahlili uning xalqaro va milliy etik yondashuvlar bilan mazmunan uyg‘un, foydalanuvchi guruhlariga moslashtirilgan va amaliy mexanizmlarga ega ekanini ko‘rsatdi. Ayniqsa, ruxsat etilgan va taqiqlangan foydalanish holatlarini ajratish, ma’lumotlar maxfiyligini himoyalash, SI natijalarini mustaqil tekshirish hamda foydalanishni oshkor qilish tartibining belgilanishi hujjatning kuchli tomonidir.

318 nafar respondent ishtirokidagi empirik tadqiqotda institutsional siyosatni qo‘llab-quvvatlash (M=4,12) va akademik halollikka sodiqlik (M=3,98) yuqori bo‘lgan. Biroq SI’dan foydalanishni oshkor qilish amaliyoti M=2,91 bilan eng past natijani qayd etgan. Respondentlarning faqat 65,4 foizi yo‘riqnomadan to‘liq yoki qisman xabardor bo‘lishi, ayniqsa talabalardagi xabardorlikning 59,5 foizda qolishi siyosat mazmunini tushuntirish va foydalanuvchilarga yetkazish mexanizmlarini kuchaytirish zarurligini ko‘rsatadi. Shu bilan birga, oshkorlik talabini barcha guruhlarning katta qismi qo‘llab-quvvatlashi o‘zgarish uchun ijobiy institutsional asos mavjudligini bildiradi.

Tadqiqot natijalari shuni ko‘rsatadiki, universitetda SI’dan foydalanish bo‘yicha aniq etik qoidalar mavjud bo‘lishi muhim, ammo buning o‘zi yetarli emas. Akademik halollikni ta’minlash uchun ushbu qoidalar foydalanuvchilarni xabardor qilish, SI savodxonligini oshirish, SI’dan foydalanishni ochiq ko‘rsa-

tish, baholash usullarini takomillashtirish va muntazam monitoring bilan birga olib borilishi kerak. Shu sababli universitet uchun muhim vazifalardan biri belgilangan qadriyatlar bilan ularning amaldagi bajarilishi o‘rtasidagi farqni kamaytirishdan iborat.

Amaliy tavsiyalar quyidagicha umumlashtiriladi: yo‘riqnomani semestr boshida tizimli tanishtirish; SI’-dan foydalanishni oshkor qilish uchun yagona va sodda shablon joriy etish; talabalar va xodimlar uchun SI etikasi va savodxonligi bo‘yicha qisqa majburiy modullar tashkil etish; har bir sillabusda SI’dan foydalanish darajasini belgilash; og‘zaki himoya, ish jarayonini bosqichma-bosqich baholash va talabaning mustaqil hissasini ko‘rsatadigan topshiriqlar ulushini oshirish; siyosat samaradorligini kamida yiliga bir marta so‘rov va monitoring orqali qayta baholash. Bunday yondashuv SI’dan foydalanishni cheklash emas, uni ta’lim sifati va akademik halollikka xizmat qiladigan boshqariladigan resursga aylantirish imkonini beradi.

## TASHAKKURNOMA

Muallif tadqiqot so‘rovnomasida ishtirok etgan talabalar, professor-o‘qituvchilar va ma’muriy xodimlarga, shuningdek tadqiqotni amalga oshirish jarayonida ko‘maklashgan Xalqaro Nordik Universiteti jamoasiga minnatdorlik bildiradi.

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