**O‘ZBEKISTON MILLIY UNIVERSITETI
HUZURIDAGI ILMIY DARAJALAR BERUVCHI
DSc.03/30.12.2019.Gr.01.06 RAQAMLI ILMIY KENGASH**

O‘ZBEKISTON MILLIY UNIVERSITETI

ZHAO YONGFENG

ICHKI MONGOLIYA (XITOY XALQ RESPUBLIKASI) XUANXE DARYOSI HAVZASIDA YANGI TURDAGI URBANIZATSIYA JARAYONI VA ATROF-MUHIT O‘RTASIDAGI BOG‘LIQLIKNI TADQIQ ETISH MASALALARI

11.00.02-Iqtisodiy va ijtimoiy geografiya

**GEOGRAFIYA FANLARI BO‘YICHA FALSAFA DOKTORI (PhD)
DISSERTATSIYASI AVTOREFERATI**

Toshkent – 2024

UDK:314.3:338.26(575.144)

Geografiya fanlari bo‘yicha falsafa doktori (PhD) dissertatsiyasi avtoreferati mundarijasi

Content of dissertation abstract of doctor philosophy (PhD) on geographical sciences

Оглавление автореферата диссертации доктора философии (PhD) по географическим наукам

O‘ZBEKISTON MILLIY UNIVERSITETI
HUZURIDAGI ILMIY DARAJALAR BERUVCHI
DSc.03/30.12.2019.Gr.01.06 RAQAMLI ILMIY KENGASH

O‘ZBEKISTON MILLIY UNIVERSITETI

ZHAO YONGFENG

ICHKI MONGOLIYA (XITOY XALQ RESPUBLIKASI) XUANXE DARYOSI HAVZASIDA YANGI TURDAGI URBANIZATSIYA JARAYONI VA ATROF-MUHIT O‘RTASIDAGI BOG‘LIQLIKNI TADQIQ ETISH MASALALARI

11.00.02-Iqtisodiy va ijtimoiy geografiya

GEOGRAFIYA FANLARI BO‘YICHA FALSAFA DOKTORI (PhD) DISSERTATSIYASI AVTOREFERATI

Toshkent – 2024

Geografiya fanlari bo‘yicha falsafa doktori (PhD) dissertatsiyasi mavzusi O‘zbekiston Respublikasi Oliy ta‘lim, fan va innovatsiyalar vazirligi huzuridagi Oliy attestatsiya komissiyasida B2023.4.PhD/Gr284 raqam bilan ro‘yxatga olingan.

Dissertatsiya Mirzo Ulug‘bek nomidagi O‘zbekiston Milliy universitetida bajarilgan.

Dissertatsiya avtoreferati uch tilda (o‘zbek, ingliz, rus (rezyume)) Ilmiy kengash veb-sahifasida (www.nuu.uz) va “Ziyonet” axborot-ta‘lim portalida (www.ziyonet.uz) joylashtirilgan.

Ilmiy rahbar:	**Tojiyeva Zulxumor Nazarovna** geografiya fanlari doktori, professor
Rasmiy opponentlar:	**Jumaxanov Shavkatjon Zairjanovich** geografiya fanlari doktori (DSc), dotsent
	Xodjaeva Gulya Ashirbaevna geografiya fanlari nomzodi, dotsent
Yetakchi tashkilot:	Chirchiq Davlat Pedagogika Universiteti

Dissertatsiya himoyasi O‘zbekiston Milliy universiteti huzuridagi ilmiy darajalar beruvchi DSc.03/30.12.2019.Gr.01.06 raqamli Ilmiy kengashning 2024-yil 13-iyul soat 12:00 dagi majlisida bo‘lib o‘tadi. (Manzil: 100174, Toshkent, Universitet ko‘chasi, 4-uy Tel.: (+99871) 227-12-14, faks: (+99871) 246-53-21; 246-02-24; E-mail: ik-geografiya.nuuz@mail.ru. O‘zbekiston Milliy universiteti, Geografiya va geoaxborot tizimlari fakulteti).

Dissertatsiya bilan O‘zbekiston Milliy universitetining Axborot-resurs markazida tanishish mumkin (№ 58 raqami bilan ro‘yxatga olingan). Manzil: 100174, Toshkent, Universitet ko‘chasi, 4-uy Tel.: (+99871) 246-67-71.

Dissertatsiya avtoreferati 2024-yil 3-iyulda tarqatildi.
(2024-yil 3-iyuldagi 62-raqamli reyestr bayonnomasi).

Sh.M.Sharipov
Ilmiy darajalar beruvchi ilmiy kengash raisi, g.f.d., dotsent

K.A.Xakimov
Ilmiy darajalar beruvchi ilmiy kengash kotibi, g.f.f.d. (PhD)

M.T.Mirakmalov
Ilmiy darajalar beruvchi ilmiy kengash qoshidagi ilmiy seminar raisi o’rinbosari, g.f.d., dotsent

KIRISH (falsafa doktori (PhD) dissertatsiyasi annotatsiyasi)

Dissertatsiya mavzusining dolzarbligi va zarurati. Jahonda urbanizatsiya jarayonining rivojlanishi, atrof muhit tizimlariga ta’siri hududlarda milliy xavfsizlik strategiyalarining global muammolarini yuzaga keltirmoqda. Bunda yangi turdagi urbanizatsiya jarayonlarining atrof-muhitga jiddiy ta’siri, atrof-muhit muammolari urbanizatsiyaning barqaror rivojlanishini cheklovchi muhim omilga aylandi. Urbanizatsiya va atrof-muhitning o‘zaro ta’siri muammolarini hal etishda bir qator xalqaro tashkilotlar, jumladan, Birlashgan Millatlar Tashkilotining 2030-yilgacha Barqaror Taraqqiyot dasturida “Noto‘g‘ri rejalashtirilgan urbanizatsiya jarayoni, xususan uy-joy yetishmasligi, infratuzilma rivojlanmasligi, atrof-muhit ifloslanish darajasi ortishi, iqlim o‘zgarishlari natijasida, shaharsozlikda samarali rejalashtirish, ekologik holatni yaxshilash” [1] vazifalari belgilangan. Mazkur vazifalarni bajarishda hududlar urbanizatsiya jarayonlari bilan atrof va atrof-muhit muhofazasi o‘rtasidagi munosabatlarni muvozanatlash, shahar aholi punktlarining global o‘zgarishlarga moslashish qobiliyatini oshirishga oid tadqiqotlar dolzarblik kasb etadi.

Jahonda mazkur yo‘nalishdagi tadqiqotlarga, jumladan, urbanizatsiya va atrof-muhit o‘rtasidagi o’zaro munosabatlar tahlili, yangi nazariyalar va usullar yordamida shahar ekotizimlari, aholi zichligi, sanoat tarmoqlari, barqaror shahar rivojlanishini tadqiq etishga ustuvor ahamiyat qaratilmoqda. Shuningdek, shaharlar va atrof muhit, yer, inson munosabatlari, urbanizatsiya va atrof-muhitni ko‘p sonli nazariy hamda empirik tadqiqot usullari asosida geografik tadqiq etish, o‘zaro muvofiqlashtirilgan holda rivojlantirish, yangi tipdagi urbanizatsiya, atrof-muhit o‘rtasidagi bog‘liqlik muammolarining yechimiga qaratilgan tadqiqotlar muhim hisoblanadi.

Xitoy Respublikasida urbanizatsiya jarayonining atrof-muhitga salbiy ta’sirini kamaytirish borasida qator islohotlar amalga oshirilmoqda va ijobiy natijalarga erishilmoqda. Xitoy Davlat kengashi tomonidan tasdiqlangan “Milliy yangi urbanizatsiya rejasida (2021-2035 yy)”da yashil rivojlanish konsepsiyasini amaliyotga tatbiq etish, shahar va qishloq joylarni kompleks rivojlantirish, urbanizatsiya jarayonining atrof-muhitga salbiy ta’sirini kamaytirish bo‘yicha muhim vazifalar belgilangan. Bu borada, qishloq joylarni barqaror rivojlanishiga erishish, yangi turdagi urbanizatsiya jarayoni va atrof-muhit o‘rtasida ekologik muvozanatli rivojlanishga qaratilgan tadqiqotlar muhim ahamiyat kasb etadi.

Xitoy Davlat Kengashining 2021-yil 8-oktyabrdagi 30-sonli “Xuanxe daryo havzasini atrof-muhitini muhofaza qilish va yuqori sifatli rivojlantirish rejasi”, 2022-yil 22-fevralda Ichki Mongoliya avtonom viloyati partiya Qo‘mitasi va Hukumati “Ichki Mongoliya avtonom rayonining Xuanxe daryosi havzasini atrof-muhitini muhofaza qilish va yuqori sifatli rivojlanish rejasi”i, Ichki Mongoliya Ijtimoiy fanlar akademiyasining 2023-yil 7-avgustdagi 22-sonli ”Ichki Mongoliya Ijtimoiy fanlar akademiyasining 2023-yilgi filial loyihasini tashkil etish to‘g‘risida

---

1[1] https://unhabitat.org/

bildirishnoma”dagi qarorlari va ushbu faoliyat bilan bog‘liq boshqa me’yoriy-huquqiy hujjatlarda belgilangan vazifalarni amalga oshirishda mazkur dissertatsiya ishi muayyan darajada xizmat qiladi.

Tadqiqotning respublika fan va texnologiyalari rivojlanishining ustuvor yo‘nalishlariga mosligi. Mazkur tadqiqot respublika fan va texnologiyalar rivojlanishining I. “Demokratik ma’naviy-ahloqiy va madaniy rivojlantirish, innovatsion iqtisodiyotni shakllantirish” ustuvor yo‘nalishiga muvofiq bajarilgan.

Muammoning o‘rganilganlik darajasi. Ushbu dissertasiya ishining asosini urbanizatsiya va atrof-muhit o‘rtasidagi bog‘liqlik, mavjud shaharlar rivojlanishidagi ijtimoiy-iqtisodiy va atrof omillarni tahlil etish tashkil qiladi. Urbanizatsiya va ekologiya o‘rtasidagi munosabatlarga iqtisodiy nuqtai-nazardan xorijlik Grossman, Krueger, David W. Pearce, Vassily W. Leontief, H.M.A. Jansen, Richard B. Norgaard, and Grem Haughton. M. Ibe, C. Granier, A. Astaraie-Imani, T. Srinivasan, Fratini, Wallace, Karl, Jones, Peterson, Parkkanen, Robert, Rinehart va boshqa olimlar urbanizatsiya va atrof-muhitni ekologiya fanlari nuqtai- nazaridan tadqiq etganlar. Atrof-muhit o‘rtasidagi munosabatlarda Thomas R. Tele, Robert Blair, Peter Deplazes, Buyantuyev, Jenerette, Berland, Nagendra, Reyes William, Mays Michael Magen, and Mathis Wackernagel va boshqa olimlar urbanizatsiya va atrof-muhit o‘rtasidagi munosabatlarga ekologiya nuqtai-nazaridan e’tibor qaratdilar. Devid J.Rapport, Toni Frid, Alberti, Grimm va boshqa olimlar urbanizatsiya va atrof-muhit o‘rtasidagi munosabatlarni sistematik tarzda baholashgan. Dunyoda urbanizatsiya va atrof-muhitni tadqiq etishning nazariy, metodologik va texnik jihatlarida juda katta muhim yutuqlarga erishildi.

Xitoy olimlari Ma Shijun, Wang Rusong, Wu Chuanjun, Zhou Xueili, Zeng Shuiding, Duan Shuimei, Xuan Yalin, Fang Chuanglin, Bao Chao, Liu Hang, Feng Langang, Zhang Luocheng, Leng Yiming, Zhang Yingxue, Chen Mingxue, Xun Bin, Li Shuangjiang, Sun Xinliang, Zhang Xiao, Fu Juanlin, Qiao Biao, Sun Xiang, Gong Jianzhou, Huangping, Xiong Yong, Che Xiuzhen, Zhao Jianji, Liu Yaobin, Wang Jiating, Huang Jinchuan, Song Xuefeng, Yang Qiang, Yu Mei, Zhao Zilong, Guan Xiangyou, Xan Duanling, Yang Shihong, Song Jianbo, Wang Shaojian, Cui Xuegang, Liu Xaimeng, Cui Muhua, Yang Liangjiye va boshqa olimlar Xitoyning turli mintaqalarida urbanizatsiya va atrof-muhit o‘rtasidagi munosabatlar bo‘yicha ko‘p o‘lchovli tadqiqot istiqbollari, turli usullar va modellarga tegishli tadqiqotlar bilan shug‘ullanadilar.

Yang Guangmei, Ding Xinyi, Ren Shuai, Gong Fang, Wu Zhenguo, Wang Jinli, Wu Zhenguo, Liang Xaishan, Wang Xin, Zhen Jianghong, Li Lingmin, Shi Yuye va boshqa olimlar Ichki Mongoliyada urbanizatsiya va atrof-muhit o‘rtasidagi munosabatlarni o‘rgandilar.

Mazkur tadqiqotning yuqoridagi tadqiqotlardan farqi shundaki, bunda Xuanxe daryo havzasidagi shahar aglomeratsiyalarining yangi tipidagi urbanizatsiya va atrof-muhitning o‘zaro ta’siri bo‘yicha tizimli bog‘lanish istiqboliga asoslanadi. Xuanxe daryo havzasidagi Ichki Mongoliya shahar aglomeratsiyalarining yuqori sifatli barqaror rivojlanishiga erishish uchun yangi turdagi urbanizatsiya va atrof-muhitni muvofiqlashtirilgan hamkorlikda rivojlanish modeli geografik jihatdan

o‘rganilganligidir.

Dissertatsiya tadqiqotining dissertatsiya bajarilgan oliy ta’lim muassasasining ilmiy-tadqiqot ishlari rejalari bilan bog‘liqligi. Dissertatsiya tadqiqoti O‘zbekiston Milliy universiteti OT-F1-176-sonli “Barqaror iqtisodiy rivojlanish “yashil” iqtisodiyot asosida ta’minlashning konseptual asoslarini takomillashtirish” hamda Ichki Mongoliya Ijtimoiy Fanlar Akademiyasining “Ichki Mongoliyaning Xuanxe daryosi havzasidagi shahar aglomeratsiyasining urbanizatsiya jarayoni va uning atrof-muhitga munosabati (2023SKF053)” mavzusidagi amaliy va fundamental loyihalar doirasida amalga oshirildi.

Tadqiqotning maqsadi. Ichki Mongoliyaning Xuanxe daryosi havzasi shahar aglomeratsiyalarida urbanizatsiya va atrof-muhit o‘rtasidagi bog‘liqlikka ta’sir etuvchi omillarni aniqlash asosida urbanizatsiya va atrof-muhitning muvofiqlashtirilgan rivojlanish modeli va strategiyasining yechimiga oid taklif va tavsiyalar ishlab chiqishdan iborat.

Tadqiqotning vazifalari:

Urbanizatsiya va atrof-muhit o‘rtasidagi o‘zaro bog‘liqlikni geografik o‘rganishning ilmiy-metodologik asoslarini tadqiq etish;

yangi turdagi urbanizatsiya jarayoni va atrof-muhitning o‘zaro ta’siri va bog‘lanishini o‘rganishning nazariy masalalarini tadqiq etish;

Ichki Mongoliyaning Xuanxe daryosi havzasidagi urbanizatsiya, shahar aglomeratsiyasi va atrof-muhiti o‘rtasidagi bog‘liqlikning makon va zamondagi dinamik o‘zgarishlari, o‘zaro ta’sirining qonuniyatlari va mexanizmlarini ochib berish;

Ichki Mongoliyaning Xuanxe daryosi havzasida urbanizatsiya va shahar aglomeratsiyasining atrof-muhitini muvofiqlashtirilgan rivojlanishiga ta’sir qiluvchi asosiy to‘siq omillarini aniqlash.

yangi turdagi urbanizatsiya jarayoni va atrof-muhit o‘rtasidagi o‘zaro bog‘liqlikning modeli va muvofiqlashtirilgan rivojlanish strategiyasini ishlab chiqish.

Tadqiqotning obyekti sifatida Ichki Mongoliyadagi (Xitoy Xalq Respublikasi) Xuanxe daryo havzasining shahar aglomeratsiyasida yangi turdagi urbanizatsiya jarayoni va atrof-muhit olingan.

Tadqiqotning predmeti. Ichki Mongoliyaning Xuanxe daryosi havzasidagi shahar aglomeratsiyalarida yangi turdagi urbanizatsiya va atrof-muhitni muvofiqlashtirilgan rivojlantirishning optimal tartibga solish modeli va strategiyasini ishlab chiqish masalalari hisoblanadi.

Tadqiqotning usullari. Dissertatsiya tadqiqotida iqtisodiy-matematik, statistik, kartografik, geografik taqqoslash, induksiya va umumlashtirish, tizim tarkib, nazariy-empirik tahlil, modellashtirish va ArcGIS dasturlaridan keng foydalanildi.

Tadqiqotning ilmiy yangiligi:

Ichki Mongoliyadagi (Xitoy) Xuanxe daryo havzasidagi urbanizatsiya va atrof-muhit o‘rtasidagi interaktiv bog‘lanishning (miqdoriy tahlil usullari va integral indeks modellari) tadqiqot usuli takomillashtirilgan;

tizim nazariyasi nuqtai-nazaridan urbanizatsiya va atrof muhit o‘rtasidagi o‘zaro ta’sir va bog‘lanishning miqdoriy analitik modeli yaratilgan hamda urbanizatsiya jarayoniga atrof-muhit ta’siri reaksiyasi makroskopik mashtabda ilmiy jihatdan asoslangan;

urbanizatsiya va atrof-muhit o‘rtasidagi o‘zaro ta’sirning makon va zamondagi dinamik o‘zgarishlaridagi qonuniyatlari va mexanizmlari ishlab chiqilgan hamda muvofiqlashtirilgan rivojlanishga ta’sir qiluvchi asosiy (to‘siq darajasi modeli, mezon qatlami va indeks qatlami) to‘siq omillari aniqlangan;

ArcGIS dasturi asosida Ichki Mongoliyadagi Xuanxe daryo havzasida yangi turdagi urbanizatsiya jarayoni va atrof-muhit o‘rtasidagi muvofiqlashtirish darajasining hududiy o‘zgarishlar kartasi hamda bog‘lanish indeksining hududiy ajratilish kartalari yaratilgan;

atrof-muhit va resurs salohiyatiga mutanosib keladigan hududiy iqtisodiy o‘sish modeli hamda urbanizatsiya jarayoni uchun optimallashtirish yo‘li va muvofiqlashtirilgan rivojlanish strategiyasi ishlab chiqilgan.

Tadqiqotning amaliy natijalari:

PSR modellarini birlashtirib, urbanizatsiya va atrof-muhitni baholash ko‘rsatkichlarining kompleks tizimi ishlab chiqildi;

Ichki Mongoliyaning Xuanxe daryosi havzasidagi urbanizatsiya jarayoni va shahar aglomeratsiyasining atrof-muhiti o‘rtasidagi o‘zaro ta’sirning makon va zamondagi dinamik o‘zgarish jarayonlari, qonuniyatlari va mexanizmlari ochib berilgan;

Ichki Mongoliyaning Xuanxe daryosi havzasidagi urbanizatsiya jarayoni va shahar aglomeratsiyasining atrof-muhiti uzoq vaqt davomida barqaror rivojlanish holati parametlari ishlab chiqilgan;

Ichki Mongoliyaning Xuanxe daryosi havzasida urbanizatsiya va shahar aglomeratsiyasining atrof-muhitini muvofiqlashtirilgan rivojlanishiga ta’sir qiluvchi asosiy to‘siq omillari aniqlangan;

Ichki Mongoliyaning Xuanxe daryo havzasida yangi turdagi urbanizatsiya va atrof-muhitni muvofiqlashtirilgan rivojlanish modeli va strategiyasi ishlab chiqilgan.

Tadqiqot natijalarining ishonchliligi. Tadqiqot natijalarining ishonchliligi Xitoyning statistik yillik to‘plami (2004-2019 yy), Xitoyning shaharlari statistik yilnomasi (2004-2019 yy), Xitoy Ichki Mongoliya avtonom viloyatining keng qamrovli ma’lumotlar platformasi va har bir shaharning statistik yilnomasi ma’lumotlaridan foydalanilganligi, asosiy natijalar xalqaro va respublika miqyosidagi konferensiya materiallari, OAK ro‘yxatidagi maxsus jurnallar hamda xorijiy ilmiy jurnallarda maqolalar chop etilganligi bilan asoslanadi. Tadqiqot natijalarining amaliyotga joriy etilganligi va ularning vakolatli tashkilotlar tomonidan tasdiqlanganligi bilan izohlanadi.

Tadqiqot natijalarining ilmiy va amaliy ahamiyati.

Tadqiqot natijalarining **ilmiy** ahamiyati tizim sintezi nuqtai-nazaridan Xitoy Ichki Mongoliyaning Xuanxe daryosi havzasidagi yangi tipdagi urbanizatsiya va atrof-muhit o‘rtasidagi interaktiv bog‘lanish munosabatlarini tadqiq qilish usulini

takomillashtirish, Ichki Mongoliyaning Xuanxe daryosi havzasida yangi turdagi urbanizatsiya va atrof-muhit o‘rtasidagi bog‘liqlik munosabatlarini optimal-lashtirish modeli ishlab chiqilganligi bilan izohlanadi

Tadqiqot natijalarining **amaliy** ahamiyati shundan iboratki, yaratilgan modellar, kartalar va statistik ma’lumotlar hamda ishlab chiqilgan tavsiyalar yangi turdagi urbanizatsiya va atrof-muhitning uyg‘unligi, muvofiqlashtirilgan rivojlan-ishiga ta’sir qiluvchi asosiy to‘siq omillarini ochib berish, shahar-qishloq hudud-larini kompleks rivojlantirish, shahar atrof xavfsizligini ta‘minlash, yangi turdagi urbanizatsiya jarayonini rivojlantirish tartibini belgilash, tabiiy resurslarni taqsim-lashda innovatsiyalar kiritish, intensiv va kam uglerodli shaharlar qurilishini rag‘batlantirishni ta’minlashga qaratilgan kompleks chora-tadbirlar majmuini ishlab chiqishga xizmat qilishi bilan belgilanadi.

Tadqiqot natijalarining joriy qilinishi. Ichki Mo‘g‘ulistonning Sariq daryosi havzasida yangi turdagi urbanizatsiya va ekologik muhit o‘rtasidagi bog‘liqlikni o‘rganish natijasida olingan ilmiy natijalar asosida:

Ichki Mongoliyadagi Xuanxe daryo havzasidagi urbanizatsiya va atrof-muhit o‘rtasidagi interaktiv bog‘lanishni tadqiq etishning takomillashtirilgan usuli urbanizatsiya jarayonining atrof-muhitga ta’sirini baholashda Jining Normal universiteti amaliyotiga joriy etilgan (Xitoy Xalq Respublikasi, Jining Normal universiteti, Geografiya fanlari va rejalashtirish maktabi, 2023-yil 04-dekabrdagi 20231204-002-son ma’lumotnomasi). Natijada, urbanizatsiya jarayonining ekologik holatga ta’sirini baholash aniqligini oshirish imkonini bergan;

tizimlarni birlashtirish nazariyasi nuqtai-nazaridan yaratilgan urbanizatsiya va ekologik muhitning bog‘liqligi nazariy tadqiqot asoslaridan, Xitoy Ichki Mo‘g‘uliston Sariq daryo havzasining shahar aglomeratsiyasida yangi turdagi urbanizatsiya va ekologik muhitni muvofiqlashtirilgan holda rivojlanishi, makon va zamondagi o‘zaro ta’sirining evolyutsiya jarayonlari, qonuniyatlari va qonunlari, ekologik muhitini birgalikda rivojlantirish modellaridan foydalanilgan (Xitoy Xalq Respublikasi, Jining Normal universiteti, Geografiya fanlari va rejalashtirish maktabi, 2023-yil 04-dekabrdagi 20231204-002-son ma’lumotnomasi). Natijada, Ichki Mo‘g‘ulistonda yangi turdagi urbanizatsiya jarayonlarini rejalashtirish, atrof-muhitni muhofaza qilish va zaruriy chora-tadbirlarni amalga oshirish imkoniyatini bergan;

urbanizatsiya va ekologik muhit o‘rtasidagi o‘zaro ta’sirning makon va zamondagi dinamik o‘zgarishlaridagi qonuniyatlari va mexanizmlari ishlab chiqilganligi hamda muvofiqlashtirilgan rivojlanishga ta’sir qiluvchi asosiy (to‘siq darajasi modeli mezon qatlami va indeks qatlami) to‘siq omillari aniqlanganligi Ichki Mo‘g‘ulistonning Sariq daryosi havzasida yangi turdagi urbanizatsiya va ekologik muhit o‘rtasidagi makon va zamondagi o‘zgarish jarayonlari, ular o‘rtasidagi o‘zaro ta’sirining qonuniyatlarini asoslashda foydalanilgan (Xitoy Xalq Respublikasi, Shinjon pedagogika universiteti, Geografiya fanlari va turizm maktabi, 2023-yil 05-dekabrdagi 20231205-002-son ma’lumotnomasi). Natijada, ekologik jihatdan zaif mintaqalarda inson va yer munosabatlarini nazariy o‘rganish va amaliy jihatdan urbanizatsiyaning yangi turini va shahar aglomeratsiyalarining

ekologik muhitini birgalikda rivojlantirish modellari va chora-tadbirlarini ishlab chiqish umkoniyatini bergan;

atrof-muhit va resurs salohiyatiga mutanosib keladigan mintaqaviy iqtisodiy o‘sish modeli, shuningdek, yuqori sifatli urbanizatsiya jarayoni uchun optimallashtirish yo‘li va muvofiqlashtirilgan rivojlanish strategiyasi, ArcGIS dasturi asosida Ichki Mo‘g‘ulistondagi Sariq daryo havzasida yangi turdagi urbanizatsiya jarayoni va ekologik muhit o‘rtasidagi muvofiqlashtirish darajasining hududiy o‘zgarishlar kartasi hamda bog‘lanish indeksining hududiy ajratilish kartalari yaratilganligi mintaqaviy siyosatda yangi turdagi urbanizatsiya jarayonlari, shahar aglomeratsiyasi va ekologik muhitni o‘zaro bog‘liq holda rivojlantirish modellarini asoslashda foydalanilgan (Xitoy Xalq Respublikasi, Shinjon pedagogika universiteti, Geografiya fanlari va turizm maktabi, 2023-yil 05-dekabrdagi 20231205-002-son ma’lumotnomasi). Natijada, Ichki Mo‘g‘uliston Sariq Daryo havzasida yangi turdagi urbanizatsiya jarayoni va ekologik muhit o‘rtasidagi o‘zaro bog‘liqlik munosabatlari modellarini, rivojlanishda istiqbol strategik rejalarini takomillashtirish imkonini bergan.

Tadqiqot natijalarining aprobatsiyasi.Tadqiqot natijalari 4 ta xalqaro ilmiy-amaliy anjumanlarida muhokama qilingan va qabul qilingan.

Tadqiqot natijalarining e’lon qilinganligi. Dissertatsiya mavzusi bo‘yicha jami 18 ta ilmiy ish chop etilgan, shulardan O‘zbekiston Respublikasi OAK doktorlik dissertatsiyalari asosiy ilmiy natijalarini chop etish tavsiya etilgan ilmiy nashrlarda 6 ta maqola, jumladan 3 tasi xorijiy va 3 tasi respublika jurnallarida nashr etilgan.

Dissertatsiyaning tuzilishi va hajmi. Dissertatsiya ishi tuzilishi jihatdan kirish, uch bob, xulosa hamda foydalanilgan adabiyotlar ro‘yxati va ilovalardan iborat. Dissertatsiyaning umumiy hajmi 162 betni tashkil etadi, shundan bevosita matn qismi 140 bet.

DISSERTATSIYANING ASOSIY MAZMUNI

Kirish qismida olib borilgan tadqiqot ishining dolzarbligi va zarurligini tushuntiradi. Tadqiqotning respublika fan-texnika taraqqiyotining ustuvor yo‘nalishlari bilan mosligi ta’kidlangan, uning dissertatsiya bajarilgan Oliy ta’lim muassasasining ilmiy-tadqiqot ishlari rejasi bilan bog‘liqligi qayd etilgan, ishning maqsadi, vazifalari, tadqiqot obyekti va predmeti tavsiflangan, tadqiqotning ilmiy yangiligi va amaliy natijalari bayon qilingan, ularning amaliyotda joriy qilinishi, nashr etilgan ishlar va dissertatsiyaning tarkibiy tuzilishi bo‘yicha ma’lumotlar keltirilgan.

Dissertatsiyaning birinchi bobi “**Urbanizatsiya va atrof-muhitni tadqiq etishning ilmiy-nazariy asoslari”,** deb nomlanib, bunda urbanizatsiya va atrof-muhitni tadqiq qilishning ilmiy-nazariy asoslari, xalqaro urbanizatsiya jarayonlarini geografik tadqiq etishning metodologiyasi bayon etilgan. Mazkur bobda, Xitoyni barqaror rivojlanishining makro fonida mahalliy olimlarning fikrlari, tadqiqotlarining mazmuni keltirilgan va o‘zaro taqqoslangan. Tadqiqotda

urbanizatsiya jarayoni mamlakat (mintaqa) iqtisodiy rivojlanishining muhim harakatlantiruvchi kuchi va o‘zaro muntanosib mintaqaviy rivojlanishni rag‘batlantiruvchi kuch ekanligi isbotlangan. Urbanizatsiya va atrof muhitning qay darajada bog‘langanligi va muvofiqlashtirilganligi mintaqaviy atrof xavfsizlik bilan bir qatorda milliy xavfsizlik strategiyasining muhim qismi hisoblanadi. Urbanizatsiya va global o‘zgarishlar hamda mintaqaviy resurslar, atrof-muhit o‘rtasidagi bog‘liqlikni o‘rganish, turli hududlar miqyosdagi urbanizatsiya jarayonlarining mintaqaviy atrof-muhit o‘zgarishlariga ta’sirini ochib berish, shaharlar va aholi punktlarining global o‘zgarishlarga moslashish qobiliyatini oshirish bo‘yicha qator olimlar, xususan Amerikalik Grossman, Kryuger, Ridker, britaniyalik Devid V.Pirs ishlari ushbu tadqiqiqotlar tobora kengayish imkonini bermoqda.

Urbanizatsiya va atrof-muhitning muvofiqlashtirilgan rivojlanishi Xitoyning atrof sivilizatsiya strategiyasini amalga oshirishning asosiy bo‘g‘inidir. Shu boisdan, qator Xitoylik olimlar o‘z davlatidagi resurslar salohiyati va atrof muammolar, Xitoy shaharlarining barqaror rivojlanishini jiddiy cheklaydi, deb hisoblaydi. Birgina mamlakatdagi iqtisodiy o‘sish sur’ati yer va suv resurslarining kamayishi tufayli, har yili pasayib borishini hamda suv va yer resurslari iste’molining iqtisodiy o‘sishga ta’sirini miqdoriy jihatdan hisoblab chiqdi. Liu Jianfen va boshqa olimlar urbanizatsiya jadal rivojlanayotgan hududlarda suv toshqini xavfi va toshqinga qarshi kurash va tabiiy ofatlarni kamaytirishga qarshi choralarni o‘rgangan bo‘lishsa, Song Juan esa urbanizatsiya jarayonining tumanga ta’sirini tadqiq qilishgan. Chjou Junfang va boshqalar esa urbanizatsiya jarayonining shahar harorati, shamol tezligi va yo‘nalishiga ta’sirini, Jiang Hongqiang degan olim urbanizatsiya jadal rivojlanishi natijasida yuzaga kelgan atrof-muhit ifloslanishining chegaraviy mezonlarini aniqlab bergan. Xitoylik olimlardan yana Huang Yalin Uxan metropolitan hududida urbanizatsiya rivojlanishi va havo sifati o‘rtasidagi munosabatlarni tadqiq qilgan.

Urbanizatsiya va sanoatlashtirish jarayonida ekotizimlarning degradatsiyasi, atrof-muhitning jiddiy ifloslanishi, resurslarning haddan tashqari iste’mol qilinishi va mintaqaviy rivojlanish bo‘shliqlarining kengayishi kabi haqiqiy ijtimoiy muammolar tobora ko‘proq namoyon bo‘lmoqda. Shahar va shaharchalar insoniyat sivilizatsiyasi va taraqqiyotining muhim ramzi sifatida moddiy va ma’naviy boyliklarni toplash va boyitish maskanidir. Urbanizatsiya va atrof- muhitning muvofiqlashtirilgan rivojlanishi Xitoyning yangi turdagi urbanizatsiyasini rag‘batlantirishning muhim yo‘lidir. Urbanizatsiya milliy modernizatsiyaning muhim ramzi va mamlakat ijtimoiy-iqtisodiy rivojlanishining muhim harakatlantiruvchi kuchi hisoblanadi. Ichki Mongoliyadagi Xuanxe daryo havzasi Xitoyning atrof xavfsizlik strategiyasining muhim qismidir.

G‘arbiy Xitoyning muhim funktsional iqtisodiy mintaqasi sifatida Ichki Mongoliya Xuanxe daryosi klasteri Xitoyning atrof xavfsizligi to‘sig‘ining muhim qismi, energiya, resurslar xavfsizligi uchun xavfsiz bazadir. Tezlik bilan rivojlanayotgan urbanizatsiya jarayoni Xitoyga xos bo‘lgan atrof muhitda resurslar va atrof-muhitga katta bosim o‘tkazdi. Ichki Mongoliyaning Xuanxe daryosi

havzasidagi inson-yer munosabatlaridagi qarama-qarshiliklarni samarali hal etishda miqdor koʻrsatkichlariga emas, sifat jihatdan rivojlanish muhim oʻrin tutadi. Bu Ichki Mongoliyaning Xuanxe daryo vodiysidagi shahar aglomeratsiyasining yuqori sifatli rivojlanishiga yordam beradi. Ichki Mongoliyadagi Xuanxe daryo havzasining shahar aglomeratsiyasi yarim qurgʻoqchil choʻl hududida joylashgan boʻlib, suv resurslarining haddan tashqari tanqisligi, zaif atrof-muhit, past atrof yuk koʻtarish qobiliyati, koʻp sonli shaharlar, murakkab sanoat turlari va aholi zichligi kattaligi kuzatiladi. Bu mintaqadagi iqtisodiy va ijtimoiy rivojlanish Xuanxe daryo havzasi suv resurslariga juda bogʻliqdir. Urbanizatsiya va sanoatlashtirishning jadal taraqqiyoti mintaqaviy tabiiy resurslarni, energetika va mineral resurslarni keng koʻlamda oʻzlashtirish, shaharlardagi aholi punktlarining uzluksiz kengayishi, transport yoʻllari, infratuzilma koʻlamini oshirishni tezlashtirdi. Ichki Mongoliya Xuanxe daryo havzasidagi shahar klasteri milliy atrof xavfsizlik strategik namunasining muhim qismi boʻlib, mamlakatning atrof xavfsizligini ta’minlash, mintaqaviy iqtisodiy poydevorni qoʻllab-quvvatlash, atrof jihatdan zaif hududlar uchun yangi turdagi urbanizatsiya jarayoni strategik modelini shakllantirishda muhim rol oʻynaydi.

Ushbu tadqiqotda tizim-tarkib nazariyasiga binoan yangi turdagi urbanizatsiya jarayoni va Xuanxe daryo havzasidagi shahar aglomeratsiyalari bilan atrof muhiti oʻrtasidagi bogʻlanish oʻzaro ta’siri oʻrganilganligidir. Ichki Mongoliya, Xuanxe daryo havzasidagi shahar aglomeratsiyasining yuqori sifatli barqaror rivojlanishiga erishish uchun yangi urbanizatsiya va atrof-muhitni muvofiqlashtirilgan holda rivojlantirish uchun hamkorlikdagi rivojlanish modeli va optimallashtirish yoʻli taklif qilinmoqda.

Urbanizatsiyaning yangi turi-bu shahar rivojlanishining yanada ilmiy, samarali va barqaror rivojlanish modeli boʻlib, shahar modernizatsiyasi va atrof-muhit oʻrtasidagi munosabatlarda insonlarning ijtimoiy-iqtisodiy hayoti xavfsizligiga yoʻnaltirilgan taraqqiyotni koʻzda tutadi. Barqaror shahar rivojlanishi deganda ma’lum vaqt va makon miqyosida shaharlarning barqaror oʻsishi va tarkibiy tuzilishini optimallashtirish orqali yuqori darajada rivojlangan urbanizatsiya va modernizatsiyani amalga oshirish tushuniladi. Yangi turdagi urbanizatsiya jarayoni - bu ilgʻor shaharlar qurilishi va rivojlanishining xalqaro miqyosidagi gʻoyalarini, tajribalarini joriy qilishga, oʻrganishga asoslangan. Shaharsozlikni optimallashtirish, shahar boshqaruvini takomillashtirish, shaharlarning yashash sharoitlarini yaxshilash va atrof-muhit sifatini yaxshilash, shahar va qishloq joylarining ijobiy oʻzaro ta’siri va integratsiyasini taʻminlash, shahar va qishloq joylarining integratsiyasini amalga oshirish yangi turdagi urbanizatsiya jarayonlarining asosiy vazifasidir.

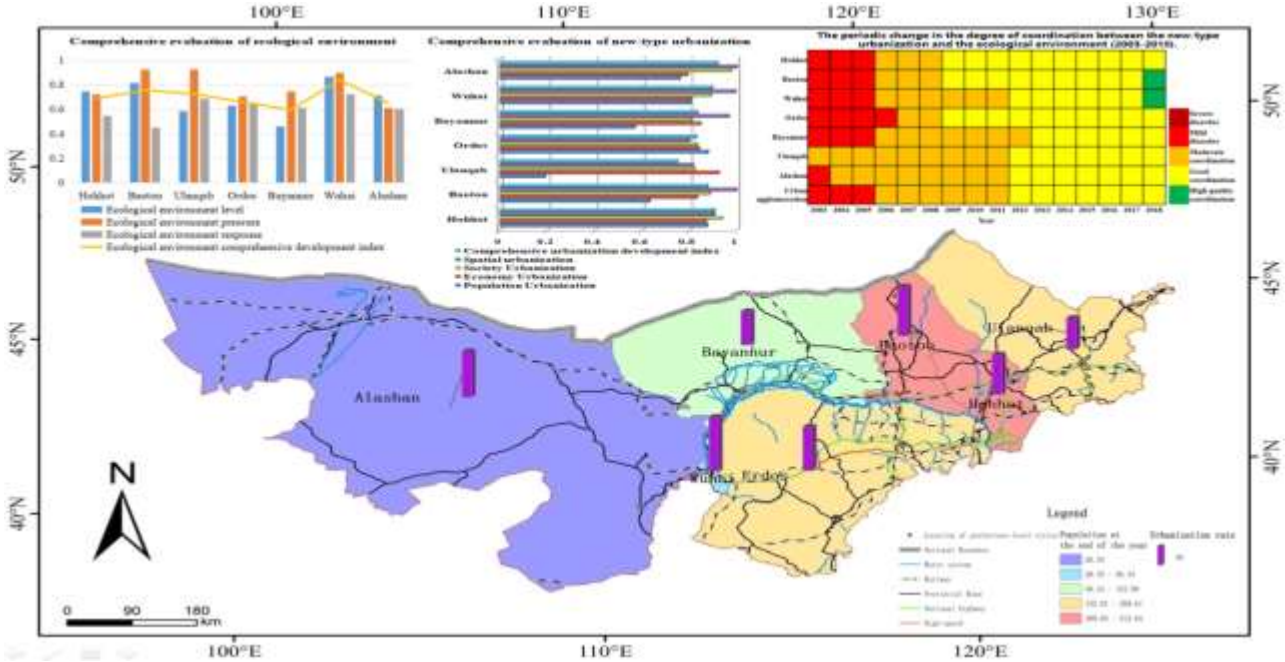
Dissertatsiyaning ikkinchi bobi, “**Ichki Mongoliyaning Xuanxe daryo havzasida yangi turdagi urbanizatsiya jarayoni va atrof-muhitning oʻzaro ta’siri va ular oʻrtasidagi bogʻlanish munosabatlari tadqiqot modelini qurish”,** deb nomlanib, unda asosan Ichki Mongoliyaning Xuanxe daryo havzasining asosiy holati, urbanizatsiya va atrof-muhit oʻrtasidagi oʻzgarishlar, bogʻliqliklar oʻrganilib, tadqiq qilingan. Ichki Mongoliyaning Xuanxe daryosi havzasidagi yangi turdagi

urbanizatsiya jarayoni va atrof-muhit o‘rtasidagi bog‘liqlikni ilmiy jihatdan o‘lchash uchun model yaratilgan.

Ichki Mongoliyadagi Xuanxe daryo havzasi o‘zining noyob geografik joylashuvi, keng maydoni, boy resurslari, energiya va sanoat konsentratsiyasi tufayli “ikki to‘siq”, “ikki tayanch” va “bir ko‘prik” qurilishining asosidir. Ichki Mongoliyaning Xuanxe daryo havzasi shahar aglomeratsiyasi Xuanxe daryo havzasining shimoliy qismida joylashgan. Havzada o‘tloqlar, o‘rmonlar, botqoqliklar, daryolar, ko‘llar, Gobi cho‘li va turli xil relyef shakllari mavjud. Ichki Mongoliya Xuanxe daryosi havzasidagi shahar aglomeratsiyasi ko‘mir, neft va gaz kabi energiya manbalariga boy bo‘lgan hududdir. So‘nggi yillarda energetika, kimyo, rangli metallar va boshqa sohalarni jadal rivojlantirishga tayangan holda, mintaqa Xitoyning g‘arbiy qismidagi muhim energetika, kimyo, xom ashyo va asosiy sanoat bazasiga aylandi.

Ichki Mongoliyada Xuanxe daryo havzasidagi shahar aglomeratsiyasining uchta markaziy shaharlari-Xoxxot, Baotou va Ordos butun mintaqaning yetakchilari hisoblanadi. Uchta shahar yalpi ichki mahsulot hajmi bo‘yicha mintaqada kuchli uchlikdan joy olgan bo‘lib, mintaqa umumiy ishlab chiqarish hajmining 53 foizini tashkil etadi. Bundan tashqari Xoxxot-Baotou-Ordos-Ulanqab shahar klasteri Xuanxe daryo havzasidagi muhim shahar klasteridir. So‘nggi yillarda Xohhot-Baotou-Ordos-Ulanqab shahar klasteri hamkorlikda va integratsiyalashgan holda rivojlanishda etakchi o‘rinni egalladi. Shahar aglomeratsiyasi shakllanishi va rivojlanishida shahar aholisi soni dinamikasi muhim o‘rin tutmoqda. Jumladan, Ichki Mongoliyaning shahar aholisi 2003-2018 yillarda sezilarli darajada o‘sib, 2018 yilda 12,7 million kishiga yoki urbanizatsiya darajasi 69,7 % ga yetdi, bu mamlakat o‘rtacha ko‘rsatkichidan 13,7 foiz punktga yuqori degani. Xoxxot va Ordos aholisi bu davrda juda tez ko‘paygan bo‘lsa, Vuhai va Baotouda urbanizatsiya darajasi yanada ortdi. So‘nggi 10 yil ichida urbanizatsiya darajasi eng yuqori va eng past bo‘lgan shaharlar Vuhay, Baotou, Alashan, Ordos, Xoxxot, Bayanur va Ulanqabdir. Ular orasida Vuhai va Baotou nisbatan yuqori urbanizatsiya darajasiga ega bo‘lgan Ichki Mongoliya avtonom viloyatidagi an’anaviy sanoat shaharlaridir. Ichki Mongoliyaning Xuanxe daryosi havzasidagi shahar aglomeratsiyalari aholisining tabiiy o‘sish sur‘ati umuman olganda barqaror va ijobiy o‘sish tendentsiyasini ko‘rsatdi. Xoxxot-Ichki Mongoliya avtonom viloyatining poytaxti bo‘lib, kuchli markaziy aglomeratsiya funktsiyasini bajarishi tufayli unga ko‘plab atrofdagi kichik va o‘rta shaharlardan odamlar ko‘chib o‘tgan. Ordos, Baotou va Xoxxot kabi shaharlar tez iqtisodiy rivojlanishni boshdan kechirmoqda. Ordos shaharning asosiy fondlariga katta sarmoya kiritildi, ta‘lim xarajatlari ortdi va iqtisodiyoti tez o‘sishni boshdan kechirmoqda, natijada, ishsizlik darajasi pasayib bordi. Qishloq joylarni shaharlarga aylantirish, shaharlarning doimiy ravishda kengayishi va shahar ichki makonlarini doimiy optimallashtirish jarayonidir. Ular orasida shaharlar maydoni, aholi jon boshiga to‘g‘ri keladigan yo‘l maydoni va aholi zichligi urbanizatsiya rivojlanishining eng yaxshi ko‘rsatkichlari hisoblanadi. 2003-2018 yillarda Ichki Mongoliyaning Xuanxe daryosi havzasidagi shahar aglomeratsiyalarining

egallagan maydoni 398,9 kv.km.,dan 815,03 kv.kilometrgacha kengaydi yoki 2,04 baravarga oshdi. Shaharlar hududi tez kengayishni boshdan kechirganligi bois, Xoxxot, Baotou va Ordos hozirda eng katta turar-joy hududlariga ega. Aholi jon boshiga to‘g‘ri keladigan shahar yo‘llari maydoni 2003-2018 yillarda 10,13 kvadrat metrdan 27,34 kvadrat metrga ko‘paydi, bu shahar transport tizimini takomillashtirish va mintaqaviy iqtisodiy rivojlanishni qo‘llab-quvvatlash imkonini berdi.



1-rasm. Ichki Mongoliya avtonom rayonining ma’muriy rayonlashtirish xaritasi.

Ichki Mongoliyaning Xuanxe daryosi havzasidagi atrof-muhitning hozirgi holatini tahlil qilish asosan atrof muhitning holati, atrof-muhitning bosimi va atrof-muhitning reaksiyasiga asoslanadi. Urbanizatsiya va sanoatlashtirish rivojlanishi bilan shaharlarning suv resurslariga talabi ortib bormoqda, bu esa turar-joylarda suv iste’moli, sanoat va qishloq xo‘jaligida suv ishlab chiqarish, suv atrof-muhiti o‘rtasidagi qarama-qarshiliklarga olib keladi. Xuanxe daryosi havzasidagi shahar aglomeratsiyasining aholi jon boshiga yashil bilan qoplanish darajasi 2003 yildagi 5,35 kvadrat metrdan 2018 yilda 24,05 kvadrat metrga o‘sdi va bu atrof-muhitni boshqarishda hal qiluvchi ahamiyatga ega bo‘ldi. Shahar aglomeratsiyasi ichida Ulanqab aholi jon boshiga 25,95 kvadrat metr yashil bog‘lar maydoni bilan birinchi o‘rinni egalladi, ikkinchi o‘rinda Ordos 20,15 kvadrat metr bilan Alashan, Xoxhot, Vuhayanur va Baotou orollari turadi. Shaharlarda aholi punktlaridagi parklarning yashil qoplamasi va yashil hududi ham ortib bormoqda, atrof atrof-muhitni muhofaza qilish ishlari ijobiy natijalarga erishmoqda.

Ichki Mongoliyaning Xuanxe daryo havzasidagi yangi turdagi urbanizatsiya va atrof-muhit tizimi o‘rtasidagi bog‘lanishni muvofiqlashtirish munosabatlarining o‘lchash modelini, ya’ni yangi turdagi urbanizatsiya va atrof- muhitni kompleks baholash indeks tizimi (1-jadval) ishlab chiqildi. Bu Ichki Mongoliyaning Xuanxe daryosi havzasidagi yangi turdagi urbanizatsiya va atrof- muhit o‘rtasidagi bog‘liqlikni empirik o‘rganish uchun muhim nazariy asos hisoblanadi.

1- jadval

Yangi turdagi Urbanizatsiya jarayoni va atrof-muhit tizimini baholash indeksi hamda vaznni hisoblash natijalari

S tizimi Daraja	C mezon qatlam	Og‘irligi sakkiz	Indeks qatlami	Xususiyat _	Og‘irligi sakkiz
U rbanizatsiya（U）	Aholi urbanizatsiyasi	0,1440	U1 yil oxiridagi aholi (10 000 kishi)	+	0,3954
			U2 Aholining tabiiy o‘sish darajasi（%）	+	0,2464
			Yil oxirida U 3 rban bandligi（odam ）	+	0,3582
	Iqtisodiy urbanizatsiya	0,1851	U 4 Yalpi hududiy mahsulot（10 000 yuan ）	+	0,2478
			U 5 kishi boshiga yalpi hududiy mahsulot（yuan ）	+	0,2356
			U 6 O‘lchovdan yuqori jami sanoat mahsuloti (10 000 yuan)	+	0,2662
			U 7 YAIMning uchinchi darajali sanoat mahsuloti qiymati（%）	+	0,2504
	Ijtimoiy urbanizatsiya	0,3419	U 8 Asosiy fondlarga jami ijtimoiy investisiyalar（10000 yuan）	+	0,2726
			U 9 Ta‘lim mablag‘lari xarajatlari（ 10 000 yuan ）	+	0,2630
			U 10 Sog‘liqni saqlash bo‘yicha texnik xodimlar soni (odamlar)	+	0,3214
			U 11U rban ro‘yxatga olingan ishsizlik darajasi（%）	-	0,1430
	Hududiy urbanizatsiya	0,3289	U 12 Shahar qurilish maydoni (km ^{2})	+	0,2457
			U 13R oad eara boshiga (m2 / kishi)	+	0,2725
			U 14P opulyasiya zichligi (odam / km ^{2})	+	0,4818
Atrof muhit（E）	Atrof muhit holati	0,4018	E1 Shahar yashovchi aholi punktlarining yashil qoplama darajasi (%)	+	0,3018
			E2 Aholi jon boshiga parklarning yashil maydoni (m ^{2}/ kishi)	+	0,2577
			E3A yillik o‘rtacha harorat （℃）	+	0,1881
			E4 Yillik jami yog‘ingarchilik (mm)	+	0,2524
	Atrof muhit bosimi	0,3295	E5 Yillik suv ta‘minoti（10000 tonna ）	-	0,2787
			E6 Sanoat chiqindi suvlari (10 000 tonna)	-	0,1551
			E7 Sanoat oltingugurt dioksidi emissiyasi (10 000 tonna)	-	0,4061
			E8 Sanoat chiqindilari (chang) (10 000 tonna)	-	0.1601
	Atrof muhit reaksiyasi	0,2687	E9 Utilizatsiya qilingan kanalizatsiya ulushi（%）	+	0,2844
			E10 Maishiy chiqindilarni zararsiz utilizatsiya qilish darajasi（%）	+	0,1827
			E11 Qattiq sanoat chiqindilaridan kompleks foydalanish (%)	+	0,2660
			E12P o‘rnatish maydoni (10,00 hm ^{2})	+	0,2669

Eslatma *Ushbu jadval muallif tomonidan mustaqil ravishda tayyorlangan.

Bog‘lanish darajasi modeli: Bog‘lanish darajasi $C \in [0,1]$, ***C 1 ga*** qanchalik yaqin bo‘lsa, bog‘lanish darajasi shunchalik katta bo‘ladi, bu ikki tizim o‘rtasidagi ta’sir darajasi qanchalik katta ekanligini ko‘rsatadi. ***U(x)*** urbanizatsiyaning kompleks rivojlanish indeksini, ***E(y)*** atrof muhitning kompleks rivojlanish indeksini ifodalaydi; ***n*** va ***m*** ikkita tizim ko‘rsatkichlari. Hisoblash formulasi quyidagicha:

$$U(x) = \sum_{i=1}^{n} \omega_i x_{ij} \qquad (1)$$

$$E(y) = \sum_{i=1}^{m} \omega_i y_{ji} \qquad (2)$$

$$C = \sqrt{\frac{U(x) \cdot E(y)}{\left(\frac{U(x) + E(y)}{2}\right)^2}}$$

Bog‘lanishni muvofiqlashtirish darajasi modeli: ***T***-keng qamrovli rivojlanish

indeksi, ***a***va ***b*** - aniqlanmagan koeffisiyentlar. Ikki tizim bir xil ahamiyatga ega, deb hisoblangani uchun ***a*** = ***b*** = 0,5 olinadi. Bog‘lanishni muvofiqlashtirish darajasi ***D*** ∈ [0, 1], ***D*** 1 ga qanchalik yaqin bo‘lsa, ikkala tizimning hamkorlikdagi rivojlanish darajasi shunchalik yuqori bo‘ladi. Hisoblash formulasi quyidagicha:

$$T = aU(x) + bE(y) \quad (4)$$

$$D = \sqrt{C \times D} \quad (5)$$

Ajratish modeli: ***DI*** $_t$***t davridagi*** atrof muhitning urbanizatsiyaga ajralish indeksini, E_t va E_{t-1} mos ravishda ***t*** va ***t -1*** yillarida atrof-muhitning to‘liq indeksini ko‘rsatadi. U_t va U_{t-1} mos ravishda ***t*** va ***t -1*** yillarida urbanizatsiyaning keng qamrovli indeksini ifodalaydi.

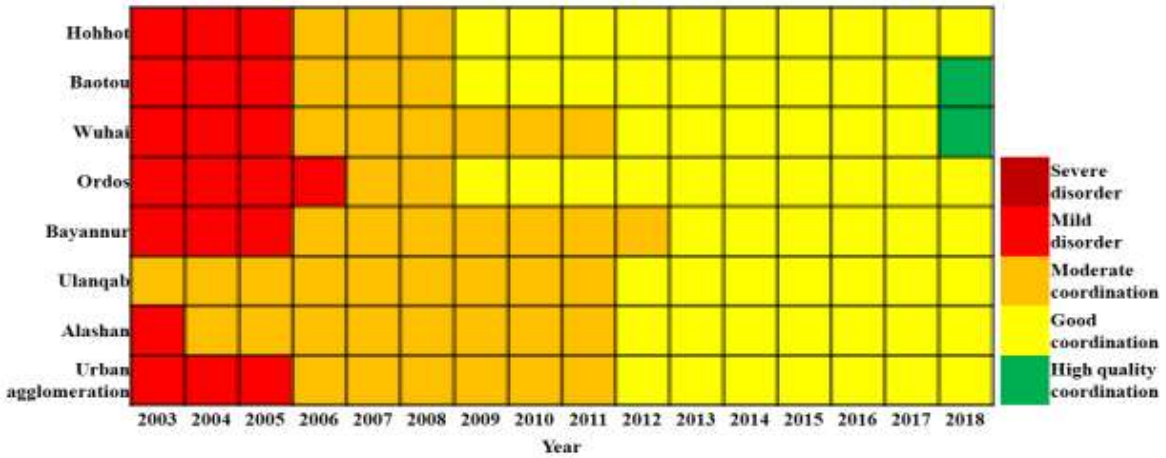
$$DI_t = \frac{(E_t - E_{t-1})/E_{t-1}}{(U_t - U_{t-1})/U_{t-1}} \quad (6)$$

To‘siq omillari diagnostikasi modeli: $\bar{o}_j$ - J-chi indeksning og‘irligi; I_j - *optimal maqsadli qiymat va har bir ko‘rsatkichning haqiqiy qiymati o‘rtasidagi farq, uni 1 –* r_{ij} sifatida ifodalash mumkin (har bir ko‘rsatkichning standartlashtirilgan qiymati va 1 o‘rtasidagi farq).

$$O_j = \frac{I_j \times \omega_j}{\sum_{j=1}^{m} I_i \times \omega_j} \quad (7)$$

Urbanizatsiya va atrof-muhit tizimlarining ichki bog‘lanishi va muvofiqlashtirilishi Ichki Mongoliyaning Xuanxe daryosi havzasidagi shahar aglomeratsiyasining barqaror rivojlanishining kalitidir.

Dissertatsiyaning uchinchi bobi “**Yangi turdagi urbanizatsiya jarayoni va atrof-muhit o‘rtasidagi o‘zaro bog‘lanish munosabatlarini ta’sirini empirik tadqiq etish”,** deb nomlanib, mazkur bobda yangi turdagi urbanizatsiya jarayoni va atrof-muhitning har tomonlama rivojlanish darajasi, yangi turdagi urbanizatsiya va atrof-muhit o‘rtasidagi bog‘liqlik munosabatlari tadqiq qilinadi. Ichki Mongoliyadagi Xuanxe daryo havzasining shahar aglomeratsiyasida yangi turdagi urbanizatsiya jarayoni va atrof-muhitning to‘siq omillari aniqlanildi, empirik tadqiqotlar natijalariga asoslanib, shahar aglomeratsiyasining atrof- muhitini muvofiqlashtirilgan holda rivojlantirish bo‘yicha istiqbollari taklif qilindi.



2-rasm. Yangi turdagi urbanizatsiya va atrof-muhit o‘rtasidagi muvofiqlashtirish darajasining davriy o‘zgarishi (2003-2018 yy).

Ichki Mongoliyaning Xuanxe daryo havzasidagi shahar aglomeratsiyasining keng qamrovli rivojlanish indeksi 2003-2018 yillarda to‘rt jihatdan ya’ni, aholi, iqtisodiy, ijtimoiy va hududiy tizimlardagi ko‘rsatkichlari urbanizatsiya darajasida tez rivojlanishga erishganligini ko‘rsatadi. 2003-2011-yillarda hukumat tomonidan yerdan intensiv foydalanish, o‘rmonzorlar maydonini ko‘paytirish, suv resurslarini muhofaza qilish, energiyani tejash va sanoat korxonalari chiqindilarini kamaytirish kabi chora-tadbirlar faol amalga oshirildi. Ichki Mongoliyaning Xuanxe daryo havzasidagi shahar aglomeratsiyalarining atrof kompleks rivojlanish indeksi tadqiqot yillarida o‘zgaruvchan tebranishlarni ko‘rsatdi. Jumladan, urbanizatsiya va atrof-muhit o‘rtasidagi bog‘lanish darajasi 2003 yilda 0,4569 dan 2018 yilda 0,8797 gacha, o‘rtacha yillik o‘sish sur’ati 2,59% ni tashkil etdi. Jumladan, 2003 yildan 2011- yilgacha bo‘lgan davrda shaharlarga bo‘lgan bosim indeksi hukumatning o‘rmonlarni kengaytirish, suvni, energiyani tejash kabi choralari tufayli sezilarli pasayishga erishdi. Ammo 2011 yildan 2018 yilgacha bo‘lgan vaqt oralig‘ida suv iste’moli ortishi tufayli bosim indeksi asta-sekin o‘sish tendensiyasini ko‘rsatdi.

Yangi tipdagi urbanizatsiya va atrof-muhit o‘rtasidagi munosabatlarining tahlili $\triangle E$, $\triangle U$ va ***DI*** va ajratish munosabatlarini hisoblash uchun ajratishning tasniflash mezonlari bo‘yicha Kompozit indeksi orqali hisolandi.

2 - jadval

Yangi turdagi urbanizatsiya va atrof muhit o‘rtasidagi o‘zaro bog‘liqlik munosabatlarning o‘sish sur’ati va davriy o‘zgarishining Kompozit indeksi (2003-2018yy)

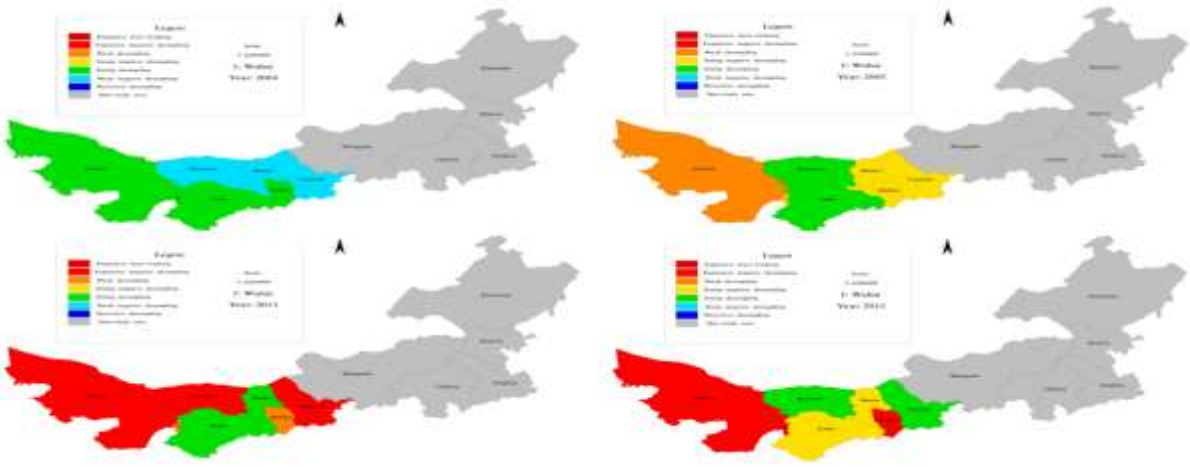
Yil	△E	△U	DI	Bog‘lanish darajasi	Yil	△E	△U	DI	Bog‘lanish dara-jasi
2004 yil	0,0166	-0,0467	-1,3918	Kuchli salbiy bog‘lanish	2012 yil	0,0189	0,0755	0,1784	Zaif
2005 yil	0,0590	-0,0465	-3,8435	Kuchli salbiy bog‘lanish	2013 yil	0,0946	0,0450	1.7160	Kengaytiruvchi salbiy
2006 yil	0,0219	0,0537	0,7447	Zaif bog‘lanish	2014 yil	0,0422	0,0392	0,8278	Kengaytirilgan bog‘lanish
2007 yil	0,0769	0,0746	1.9458	Kengaytiririlgan salbiy bog‘lanish	2015 yil	0,0609	0,0081	5.8176	Kengaytiruvchi salbiy
2008 yil	0,0149	0,0148	1.6471	Kengaytiririlgan salbiy bog‘lanish	2016 yil	0,0427	0,0913	0,3411	Zaif
2009 yil	0,1179	-0,0036	-51.9575	Kuchli salbiy bog‘lanish	2017 yil	0,0032	-0,0093	-0,2774	Kuchli salbiy
2010 yil	0,0779	0,0124	7.2168	Kengaytiririlgan salbiy bog‘lanish	2018 yil	0,0123	0,0364	0,2655	Zaif
2011 yil	0,0876	-0,0752	-1,1531	Kuchli salbiy bog‘lanish					

Izoh* Ushbu jadval muallif tomonidan olib borilgan tadqiqot natijalari asosida tuzilgan.

Urbanizatsiyaning keng qamrovli rivojlanish indeksi (2003-2018 yy) Ichki Mongoliyaning Xuanxe daryo havzasidagi atrof-muhitning rivojlanish indeksi o'rtasidagi bog‘liqlik: kuchli salbiy, kuchsiz, zaif va kengaytiririlgan salbiy bog‘lanish, urbanizatsiya va eko-muhit tizimi o'rtasidagi uzoq muddatli va takroriy interaktiv moslashuv jarayonini aks ettiradi. Shahar rivojlanishi va atrof muhit o‘rtasidagi o‘zaro bog‘liqlikning 2018 yildagi ko‘rsatkichlari zaif, ya’ni kuchsiz bo‘lib, bu shahar rivojlanishining nisbatan ideal holati yani, bu bosqichda yangi turdagi urbanizatsiyaning rivojlanish darajasi va shaharning atrof-muhiti darajasi

yaxshilanganini ko‘rsatadi. Kompozit urbanizatsiya darajasi indeksi 14 yil davomida 0,7320 ga oshdi, o‘rtacha yillik o‘sish sur’ati esa 5,23 foizni tashkil etdi. Biroq, urbanizatsiya sur’ati 2016 yildan keyin iqtisodiy o‘sishining sekinlashishi tufayli sustlashdi. 2018 yilda Xuanxe River City klasterining integratsiyalangan atrof muhit indeksi 0,7018 ga teng bo‘ldi, 2003 yildan 2018 yilgacha 0,2696 ga biroz o‘sdi va o‘rtacha yillik o‘sish sur’ati 1,685 %ni tashkil etdi. Bu shuni ko‘rsatadiki, Ichki Mongoliyada shahar aglomeratsiyasi rivojlanishining iqtisodiy harakatlantiruvchi kuchi atrof cheklovlar va boshqa omillar tufayli zaiflashdi va aholi soni barqarorlashdi, bu esa shaharlarning eniga va bo‘yiga kengayish tezligining sekinlashishiga olib keldi. Ichki Mongoliyadagi Xuanxe daryo havzasidagi shahar klasterining urbanizatsiya va atrof-muhiti o‘rtasidagi muvofiqlashtirish darajasi doimiy o‘sish tendentsiyasini saqlab qolsa-da, uning mohiyati atrof-muhitning keng qamrovli rivojlanish indeksining o‘sib borayotgan tebranishining natijasidir. Urbanizatsiyaning keng qamrovli rivojlanish indeksi 2003-2018 yillarda Ichki Mongoliyaning Xuanxe daryosi havzasida shahar aglomeratsiyasining atrof-muhitga salbiy ta’sirni ko‘rsatadi.

Atrof muhit va urbanizatsiya jarayonlari o‘rtasidagi bog‘lanish indeksining davriy o‘zgarish sxemasi (4-rasm), Xoxxot, Vuxay, Ordos, Bayannur, Ulanqab va Alashan shaharlarida vaziyat salbiy ekanligini, Baotou esa biroz ijobiy holatni ifodalaydi. Ichki Mongoliyaning Xuanxe daryo havzasi shahar klasteridagi Yangi tipdagi urbanizatsiya jarayoni va atrof-muhit o‘rtasidagi bog‘liqlikda, 2018-yilda 7 ta shaharning urbanizatsiya darajasi indeksi qatlamidagi asosiy to‘siqlar quyidagilardir: aholining tabiiy o‘sish sur’ati-U2, umumiy sanoat mahsuloti qiymati belgilangan hajmdan yuqori-U6, jami ijtimoiy asosiy fondlarga investitsiyalar-U8 va aholi jon boshiga yalpi hududiy mahsulot-U5, ular asosan aholi urbanizatsiyasi, iqtisodiy urbanizatsiya va ijtimoiy urbanizatsiya quyi tizimlarida namoyon bo'ladi.



3-rasm. Yangi turdagi urbanizatsiya va atrof-muhit o‘rtasidagi ajratish indeksining fazoviy taqsimoti.

Urbanizatsiya jarayonida yer resurslarining cheklanganligi, sanoat yer resurslarining tanqisligi, yer narxining oshishi, shahar aholi punktlarining iqtisodiy va ijtimoiy rivojlanishi oldida turgan murakkab muammolar sifatida maydonga

chiqdi. Xoxxot, Baotou, Vuhay, Ordos va Ulanqabuning beshta shaharlari sanoat tuzilmasini optimallashtirish va modernizatsiya qilishni tezlashtirishi, yashil rivojlanishni kuchaytirish, energiya tejash, sanoat korxonalarining emissiyasini kamaytirish, suvni tejash, nazorat qilish choralarini to‘liq amalga oshirish, suvdan foydalanishni optimallashtirish, atrof tizimlarni muhofaza qilish, atrof-muhit ifloslanishini tizimli tozalashni, daryolar havzasi suv resurslaridan samarali va intensiv foydalanishni kuchaytirishni taqozo etmoqda.

XULOSA

1. Urbanizatsiya va atrof-muhit o‘rtasidagi o‘zaro ta’sir va tartibga solish mexanizmlari murakkab va o‘zaro bog‘liqdir. Urbanizatsiya iqtisodiy o‘sish, hududiy kengayish, aholi oqimi kuchayishi tufayli shaharning atrof-muhitining o‘zgarishiga olib keladi. Bu suvga, yer resurslariga, energiyaga bo‘lgan talabning oshishiga va hududiy yerdan foydalanish tuzilmalarining o‘zgarishiga salbiy ta’sir etadi. Atrof-muhit ham urbanizatsiyaning atrof-muhitga ta’siri resurs imkoniyatlari va atrof-muhit salohiyati, shahar hajmi, joylashuvi, sanoat tuzilishi va rivojlanish tezligini cheklaydi. Ushbu o‘zaro ta’sir munosabatlari institusionallashtirilgan, siyosatga yo‘naltirilgan va institusionallashtirilgan tarkibiy tuzilmalar orqali ijobiy va salbiy qayta aloqa mexanizmlarining muvozanatiga erishishi kerak.

2. Ichki Mongoliyaning Xuanxe daryosi havzasidagi shahar aglomeratsiyalarining davriy rivojlanishi rivojlangan atrof-muhitdan orqada qolgan muhitga o‘tdi. Urbanizatsiya darajasining o‘sish sur’ati atrof-muhit yaxshilanish sur’atiga qaraganda tezroq bo‘lib, shaharning rivojlanish bosqichlari bilan atrof-muhit muvofiq emas. Urbanizatsiya darajasining ortib borishi yuqori sifatli yangi turdagi urbanizatsiyaga erishish uchun Ichki Mongoliyadagi shahar aglomeratsiyalari atrof muhitni yaxshilash, atrof vaziyat sifatini oshirish va urbanizatsiya rivojlanish darajalarini mutanosib, muvofiqlashtirilgan rivojlanishini ta’minlashi lozim.

3. Ichki Mongoliyaning Xuanxe daryosi havzasi urbanizatsiya va atrof-muhit tizimlar o‘rtasidagi birgalikdagi muvofiqlashtirish darajasida doimiy o‘sish tendensiyasini boshdan kechirmoqda. Ushbu rivojlanish yuqori darajadagi ulanish bosqichidan yuqori sifatli ulanish bosqichiga o‘tdi. Ichki Mongoliyaning Xuanxe daryosi havzasidagi urbanizatsiya va atrof-muhit o‘rtasidagi bog‘liqlik va muvofiqlashtirish darajasi umuman uzluksiz o‘sish tendentsiyasini ko‘rsatdi. Urbanizatsiya va atrof-muhit o‘rtasidagi uyg‘un bog‘lanishga erishish shahar aglomeratsiyalariga shoshilinch e’tiborni talab qiladigan muhim vazifadir.

4. Ichki Mongoliyadagi Xuanxe daryo havzasi bo‘ylab shahar aglomeratsiyasida uchinchi darajali sanoatning ulushi o‘zgaruvchan o‘sish tendentsiyasini ko‘rsatadi. 2003-2009 yillarda ikkilamchi sanoatning rivojlanish sur’ati yuqori bo‘lgan bir vaqtda, uchinchi darajali sanoat tez rivojlanish bosqichida edi. Shahar aglomeratsiyasi nuqtai-nazaridan, Xoxxot va Baotouda urbanizatsiya darajasi baland, uchinchi darajali sanoatning ulushi boshqa beshta shaharga qaraganda ancha yuqoriligiga erishdi. Bu esa Ichki Mongoliyaning

Xuanxe daryosi havzasidagi iqtisodiy o‘sish, urbanizatsiya, shahar aglomeratsiyalarining jadal, sifatli rivojlanishiga yordam berish lozim.

5. Urbanizatsiya va atrof-muhit o‘rtasidagi o‘zaro bog‘liqlikni ochib berish uchun bog‘lanish modellari qo‘llanilgan. Ichki Mongoliyaning Xuanxe daryosi havzasidagi shahar aglomeratsiyalari atrof-muhitning salbiy oqibatlarini boshdan kechirdi. Urbanizatsiyaning atrof-muhitda barqarorligi uning darajasi yomonligini ifodalaydi. Shahar aglomeratsiyasining, urbanizatsiyasining rivojlanishi uzoq vaqt davomida atrof-muhitga salbiy ta’sir ko‘rsatgan bo‘lsa-da, u atrof-muhitning ko‘tara olish qobiliyati chegarasida qolmoqda. Atrof-muhitning ko‘tara olish qobiliyati chegarasiga yetib bormagan bo‘lsa-da, urbanizatsiya jarayonining salbiy ta’siriga e’tibor berish, kuchli salbiy ta’siriga yo‘l qo‘ymaslik va shahar aglomeratsiyasining, urbanizatsiya yuqori sifatli rivojlantirishni kuchaytirish talab etadi. Urbanizatsiya va integratsiyalashgan atrof-muhit indeksi o‘rtasidagi bog‘lanishning barqarorligini yanada mustahkamlash maqsadga muvofiq .

6. To‘siq darajasi modeli asosiy to‘siq omillarini aniqlash uchun ishlatiladi. Aholining urbanizatsiyasi va iqtisodiy urbanizatsiya Ichki Mongoliyaning Xuanxe daryosi havzasidagi shahar aglomeratsiyasining yuqori sifatli rivojlanishiga asosiy to‘siq bo‘lib qolmoqda. Urbanizatsiya indeksi qatlamidagi atrof-muhitga munosabatda atrof-muhit sifatini doimiy ravishda yaxshilash uchun asosiy to‘siqlar quyidagilardir: aholining tabiiy o‘sish sur’ati-U2, sanoat mahsuloti qiymati belgilangan hajmdan yuqori-U6, asosiy kapitalga umumiy investitsiyalar-U8, aholi jon boshiga YaIM-U5; Atrof-muhit indeksi qatlamidagi asosiy to‘siqlar qattiq sanoat chiqindilaridan integratsiyalashgan foydalanish darajasi- E11; yillik o‘rtacha harorat-E3; o‘rmonzorlar maydoni-E12 va umumiy yillik suv ta’minoti-E5 hisoblanadi.

SCIENTIFIC COUNCIL CONFERRING SCIENTIFIC DEGREES AT THE NATIONAL UNIVERSITY OF UZBEKISTAN DSc.03/30.12.2019.Gr.01.06

NATIONAL UNIVERSITY OF UZBEKISTAN

ZHAO YONGFENG

ISSUES OF STUDYING THE RELATIONSHIP BETWEEN THE NEW TYPE OF URBANIZATION PROCESS AND THE ENVIRONMENT IN THE HUANHE RIVER BASIN OF INNER MONGOLIA (PEOPLE'S REPUBLIC OF CHINA)

11.00.02 – Economic and social geography

ABSTRACT OF DOCTOR OF PHILOSOPHY (PhD) DISSERTATION IN GEOGRAPHICAL SCIENCES

Tashkent – 2024

The topic of the dissertation of the Doctor of Philosophy (PhD) in geographical sciences is registered in the Supreme Attestation Commission under the Ministry of Supreme Education, Science and Innovation of the Republic of Uzbekistan under the number B2023.4.PhD/Gr284.

The dissertation was completed at the National University of Uzbekistan named after Mirzo Ulugbek.

The abstract of the dissertation in three languages (uzbek, english, russian (summary)) is posted on the website of the Scientific Council at (www.nuu.uz) and on the Information and Educational Portal «Ziyonet» at (www.ziyonet.uz).

Scientific adviser:	**Tojieva Zulkhumor Nazarovna** doctor of geographical sciences, professor
Official opponents:	**Jumaxanov Shavkatjon Zairjanovich** doctor of geographical sciences (DSc), associate
	Xodjaeva Gulya Ashirbaevna candidate of geography sciences, dosent
Leading organization:	**Chirchik State Pedagogical University**

The defense of the dissertation will take place on 13 July 2024 in 12:00 at the meeting of one-time scientific council of Scientific DSc.03/30.12.2019.Gr.01.06 at the National university of Uzbekistan (Address: University str., 4. Tashkent, 100174. Tel.: (+99871) 227-12-24. fax: (+99871) 246-53-21; 246-02-24. E-mail: ik-geografiya.nuuz@mail.ru. Faculty of Geography and Geoinformation Systems, National university of Uzbekistan).

The dissertation is registered in Information Resource Center (IRC) of National university of Uzbekistan under No 58 (Address: University Street, 4. 100174, Tashkent. Tel.: (+99871) 246-67-71.The abstract of the dissertation has been distributed on 03 July 2024 year

(Protocol at the register № 62 dated 03 July 2024 year

Sh.M.Sharipov
Chairman of the Scientific council awarding Scientific degrees, doctor of geographical sciences, docent

K.A.Xakimov
Scientific secretary of the Scientific council for awarding the scientific degrees, doctor of geographical sciences (PhD)

M.T.Mirakmalov
Chairman of the Scientific seminar at the Scientific council awarding scientific degrees, doctor of geographical sciences, docent

INTRODUCTION (annotation of the doctoral dissertation (PhD))

Topicality and necessity of the thesis. The development of the urbanization process in the world, its impact on ecological systems is causing global strategic problems of national security strategies in the regions. In this regard, the serious impact of new types of urbanization processes on the ecological environment has become an important factor limiting the sustainable development of urbanization. In solving the problems of the interaction between urbanization and the ecological environment, a number of international organizations, including the United Nations Program for Sustainable Development until 2030, have identified tasks such as “effective urban planning, improving the environmental situation due to ill-planned urbanization processes, especially housing shortages, lack of infrastructure development, increasing environmental pollution, and climate change[1]”. To accomplish these tasks, research on balancing the relationship between urbanization processes in the regions and environmental protection, and increasing the ability of urban settlements to adapt to global changes, becomes relevant.

In the world, priority is given to research in this subject, including the analysis of interactions between urbanization and the environment, the study of urban ecosystems, population density, industrial sectors, and sustainable urban development using new theories and methods. Research aimed at geographically studying the relationship between cities and the environment, land, and humans, as well as developing urbanization and the environment in a coordinated manner using numerous theoretical and empirical research methods, as well as finding solutions to the problems of the relationship between new types of urbanization and the environment, is also very important.

In the Republic of China, a number of reforms are being implemented to reduce the negative impact of the urbanization process on the environment, and positive results are being achieved. In the "National New Urbanization Plan (2021-2035)" approved by the State Council of China, important tasks are defined for implementing the concept of green development, comprehensive development of urban and rural areas, and reducing the negative impact of the urbanization process on the environment. In this regard, research aimed at achieving sustainable development of rural areas, a new type of urbanization process and ecologically balanced development between the environment is of great importance.

This dissertation serves to some extent in implementing the tasks set out in the Resolution China's State Council No. 30 of October 8, 2021 "Huanghe River Basin Environmental Protection and High-Quality Development Plan", February 22, 2022 Inner Mongolia Autonomous Region Party Committee and Government "Huanghe River Basin of Inner Mongolia Autonomous Region" environmental protection and high-quality development plan", decisions of the Inner Mongolia Academy of Social Sciences dated August 7, 2023 No. 22 "Notice on the establishment of the 2023 branch project of the Inner Mongolia Academy of Social Sciences" and related activities This dissertation works to a certain extent in the im-

---

1[1] https://unhabitat.org/

plementation of the tasks defined in other regulatory legal documents.

Relevant research priority areas of science and developing technology of the Republic. This research was carried out in accordance with the priority area I. "Democratic spiritual, moral and cultural development, formation of an innovative economy" of the development of science and technology in the republic.

Problem development status.

The basis of this dissertation is the relationship between urbanization and the environment, the analysis of socio-economic and environmental factors in the development of existing cities. Economic Perspectives on the Relationship Between Urbanization and Ecology Foreign Grossman, Krueger, David W. Pearce, Vassily W. Leontief, H.M.A. Jansen, Richard B. Norgaard, and Graham Haughton. M. Ibe, C. Granier, A. Astaraie-Imani, T. Srinivasan, Fratini, Wallace, Carl, Jones, Peterson, Parkkanen, Robert, Rinehart and others have studied urbanization and the environment from the perspective of ecological sciences. In Environmental Relations, Thomas R. Tele, Robert Blair, Peter Deplazes, Buyantuyev, Jenerette, Berland, Nagendra, Reyes William, Mays Michael Magen, and Mathis Wackernagel and other scholars examine the relationship between urbanization and the environment from an ecological perspective. they paid attention. David J. Rapport, Tony Fried, Alberti, Grimm and other scholars have systematically assessed the relationship between urbanization and the environment. In the world, significant progress has been made in the theoretical, methodological and technical aspects of urbanization and environmental research.

Chinese scientists Ma Shijun, Wang Rusong, Wu Chuanjun, Zhou Xueili, Zeng Shuiding, Duan Shuimei, Xuan Yalin, Fang Chuanglin, Bao Chao, Liu Hang, Feng Langang, Zhang Luocheng, Leng Yiming, Zhang Yingxue, Chen Mingxue, Hun Bin, Li Shuangjiang, Sun Xinliang, Zhang Xiao, Fu Juanlin, Qiao Biao, Sun Xiang, Gong Jianzhou, Huangping, Xiong Yong, Che Xiuzhen, Zhao Jianji, Liu Yaobin, Wang Jiating, Huang Jinchuan, Song Xuefeng, Yang Qiang, Yu Mei, Zhao Zilong, Guan Xiangyou, Han Duanling, Yang Shihong, Song Jianbo, Wang Shaojian, Cui Xuegang, Liu Haimeng, Cui Muhua, Yang Liangjie and other scholars Multidimensional research perspectives on the relationship between urbanization and environment in different regions of China, different methods and are engaged in research related to models.

Yang Guangmei, Ding Xinyi, Ren Shuai, Gong Fang, Wu Zhenguo, Wang Jinli, Wu Zhenguo, Liang Xaishan, Wang Xin, Zhen Jianghong, Li Lingmin, Shi Yuye and other scholars have studied the relationship between urbanization and the environment in Inner Mongolia.

The difference between this research and the above studies is that it is based on a systematic relationship between the new type of urbanization and the ecological environment of urban agglomerations in the Xuanxe River basin. It is geographically studied how to achieve high-quality sustainable development of urban agglomerations in the Xuanxe River basin of Inner Mongolia through a model of coordinated development of a new type of urbanization and the ecological environment.

Relevance of the dissertation research with the plans of the scientific-research works of the Supreme educational or scientific research institutions where the dissertation has been conducted. The dissertation research was carried out within the framework of the OT-F1-176 project "Improving the conceptual foundations for ensuring sustainable economic development based on a "green" economy" at the National University of Uzbekistan and the project "Urbanization process of the urban agglomeration in the Xuanxe River basin of Inner Mongolia and its relationship with the ecological environment (2023SKF053)" of the Academy of Social Sciences of Inner Mongolia.

The aim of the research work. Based on the determination of the factors affecting the relationship between urbanization and the environment in the urban agglomerations of the Huanghe River basin of Inner Mongolia, it is necessary to develop proposals and recommendations for the solution of the coordinated development model and strategy of urbanization and the environment.

The tasks of the research work:

To study the scientific and methodological foundations of the geographical study of the relationship between urbanization and the environment;

Researching the theoretical issues of studying the interaction and connection of the new type of urbanization process and the environment;

To reveal the laws and mechanisms of dynamic changes in space and time, interactions between urbanization, urban agglomeration and the environment in the Huanghe River basin of Inner Mongolia;

To identify the main obstacles affecting the coordinated development of urbanization and the ecological environment of urban agglomerations in the Xuanxe River basin of Inner Mongolia.

To develop a model and strategy for the coordinated development of the relationship between the process of a new type of urbanization and the ecological environment.

The object of the research work: A new type of urbanization process and environment in the urban agglomeration of Huanghe River basin in Inner Mongolia (People's Republic of China)

The subject of the research work: Development of a new type of urbanization and an optimal regulatory model and strategy for coordinated development of the environment in urban agglomerations in the Huanghe River Basin of Inner Mongolia are considered issues.

Methods of the research: In the dissertation research, economic-mathematical, statistical, cartographic, geographic comparison, induction and generalization, system composition, theoretical-empirical analysis, modeling and ArcGIS software were widely used.

Scientific novelty of the research work:

The research method (quantitative analysis methods and integral index models) of the interactive connection between urbanization and the environment in the Huanghe River Basin in Inner Mongolia (China) has been improved;

from the point of view of system theory, a quantitative analytical model of the

interaction and connection between urbanization and the environment was created, and the reaction of the environment to the urbanization process was scientifically based on a macroscopic scale;

The laws and mechanisms of the interaction between urbanization and the environment in dynamic changes in space and time are developed, and the main (obstacle level model, criterion layer and index layer) barrier affecting coordinated development is developed identified factors;

Based on the ArcGIS program, a new type of map of regional changes of the degree of coordination between the urbanization process and the environment and maps of the regional separation of the connectivity index were created in the Huanghe River basin in Inner Mongolia;

A regional economic growth model commensurate with the environment and resource potential, as well as an optimization path and a coordinated development strategy for the urbanization process have been developed.

Practical results of the research work:

By combining PSR models, a comprehensive system of urbanization and environmental assessment indicators was developed;

The processes, laws and mechanisms of dynamic change in space and time of the interaction between the urbanization process and the environment of the urban agglomeration in the Huanghe River basin of Inner Mongolia are revealed;

The parameters of the urbanization process and urban agglomeration environment in the Huanghe River basin of Inner Mongolia have been developed for a long time.

The main obstacle factors affecting the environmentally coordinated development of urbanization and urban agglomeration in the Huanghe River Basin of Inner Mongolia have been identified;

A new type of urbanization and environmental coordinated development model and strategy has been developed in the Huanghe River Basin of Inner Mongolia.

Authenticity of the research results. The reliability of the research results is based on the use of data from the Statistical Yearbook of China (2004-2019), the Statistical Yearbook of Chinese Cities (2004-2019), the Comprehensive Data Platform of the Inner Mongolia Autonomous Region of China, and the statistical yearbooks of each city, as well as the publication of major results in conference proceedings at international and republican levels, journals included in the List of the Supreme Attestation Commission, and foreign scientific journals. The implementation of the research results in practice and their approval by authorized organizations are explained.

Scientific and practical value of the research results.

The scientific significance of the research results is explained by the

The scientific significance of the research results from the perspective of system synthesis is to improve the research method of the new type of urbanization and the interactive relationship between the environment in the Huanghe River Basin of Inner Mongolia, and to develop the new type of urbanization and the envi-

ronment relationship in the Huanghe River Basin of Inner Mongolia. It is explained by the fact that the optimization model has been developed

The practical importance of the research results is that the created models, maps and statistical data, as well as the developed recommendations reveal the main obstacles affecting the harmony of the new type of urbanization and the environment, the coordinated development, the integrated development of urban-rural areas, the city suburbs. It is determined that it serves to develop a complex set of measures aimed at ensuring safety, determining the procedure for the development of a new type of urbanization process, introducing innovations in the distribution of natural resources, encouraging the construction of intensive and low-carbon cities.

Implementation of research results. Based on the scientific results obtained from studying the relationship between new-type urbanization and the ecological environment in the Yellow River basin of Inner Mongolia:

An improved method for researching the interactive relationship between urbanization and the environment in the Huanghe River Basin in Inner Mongolia was introduced into the practice of Jining Normal University in the assessment of the environmental impact of the urbanization process (School of Geography and Planning, Jining Normal University, People's Republic of China , reference number 20231204-002 dated December 4, 2023). As a result, it made it possible to increase the accuracy of the assessment of the impact of the urbanization process on the ecological situation;

The theoretical research bases of the relationship between urbanization and the ecological environment created from the perspective of the theory of systems integration, the coordinated development of a new type of urbanization and ecological environment in the urban agglomeration of the Yellow River Basin of Inner Mongolia, China, the evolution of the interaction in space and time processes, laws and laws, models of joint development of the ecological environment were used (Reference No. 20231204-002 dated December 4, 2023, Jining Normal University, School of Geography and Planning, People's Republic of China). As a result, it made it possible to plan new types of urbanization processes, protect the environment and implement necessary measures in Inner Mongolia;

The patterns and mechanisms of the interaction between urbanization and the ecological environment in dynamic changes in space and time have been developed, and the main (barrier level model, criterion layer and index layer) barrier factors affecting coordinated development have been determined The processes of change in space and time between a new type of urbanization and the ecological environment in the Yellow River basin of Inner Mongolia were used to justify the laws of their interaction (People's Republic of China, Xinjiang Pedagogical University, Geographical Sciences and tourism school, reference number 20231205-002 dated December 5, 2023). As a result, it provided an opportunity to theoretically study the relationship between man and land in ecologically weak regions and to develop models and measures for the joint development of a new type of urbanization and the ecological environment of urban agglomerations;

The model regional economic growth model proportionate to the environment and resource potential, as well as an optimization path and coordinated development strategy for a high-quality urbanization process, a new type of urbanization process and ecological environment in the Yellow River basin in Inner Mongolia based on ArcGIS software The creation of maps of territorial changes of the degree of coordination and maps of territorial separation of the index of connectivity were used in regional policy to justify new types of urbanization processes, urban agglomeration and interdependent development models of the ecological environment (People's Republic of China, Xinjiang Pedagogical University, Geography science and tourism school, reference number 20231205-002 dated December 5, 2023). As a result, Inner Mongolia has made it possible to improve the models of interdependence between the new type of urbanization process and the ecological environment, and the future strategic plans in the Yellow River Basin.

Approbation of the research results. The research results were discussed and accepted at 4 international scientific-practical conferences.

Publication of the research results. A total of 18 scientific works have been published on the topic of the dissertation, of which 6 articles are in scientific publications recommended by the Supreme Attestation Commission of the Republic of Uzbekistan for the publication of the main scientific results of doctoral dissertations, including 3 in foreign and 3 in republican journals.

The outline of the thesis. The dissertation consists of an introduction, three chapters, a conclusion, a list of references, and appendices. The total volume of the dissertation is 162 pages, of which the actual text part is 140 pages.

THE MAIN CONTENT OF THE DISSERTATION

The **introduction** explains the relevance and necessity of the research work carried out. The conformity of the research with the priority areas of scientific and technological development of the republic is emphasized, its relationship with the research plan of the Supreme education institution where the dissertation was completed is noted, the purpose, tasks, object and subject of the research are described, the scientific novelty and practical results are presented, information on their implementation in practice, published works and the structural composition of the dissertation is given.

The first chapter of the dissertation is entitled **"Scientific Theoretical Foundations of the Study of Urbanization and the Ecological Environment,"** which outlines the scientific theoretical foundations of the study of urbanization and the ecological environment, and the methodology of geographical study of international urbanization processes. In this chapter, the views of local scholars and the content of their research against the background of China's sustainable development are presented and compared. The research proves that the urbanization process is an important driving force for the economic development of the country (region) and a force that promotes mutually proportional regional development. The degree of interconnection and coordination between urbanization and the environment is

an integral part of the national security strategy, along with regional environmental security. The work of a number of scholars, in particular the Americans Grossman, Krueger, Ridker and the Briton David W. Pirs, allows the expansion of research on the relationship between urbanization and global change and regional resources and the environment, revealing the impact of urbanization processes at various spatial scales on changes in the regional ecological environment, and increasing the ability of cities and settlements to adapt to global changes.

Coordinated development of urbanization and the environment is a key link in the implementation of China's ecological civilization strategy. Therefore, a number of Chinese scholars believe that the resource potential and environmental problems in their country seriously limit the sustainable development of Chinese cities. One study quantified the annual decline in economic growth due to the depletion of land and water resources in a single country and the impact of water and land resource consumption on economic growth. While Liu Jianfen and other scholars studied the risk of flooding in areas with rapid urbanization, measures to combat flooding and mitigate natural disasters, Song Juan explored the impact of the urbanization process on fog. Zhou Junfang and others investigated the impact of the urbanization process on urban temperature, wind speed and direction, while scholar Jiang Hongqiang identified the boundary criteria for environmental pollution caused by rapid urbanization. Another Chinese scholar, Huang Yalin, studied the relationship between urbanization development and air quality in the Wuhan metropolitan area.

In the process of urbanization and industrialization, real social problems such as the degradation of ecosystems, severe environmental pollution, excessive consumption of resources, and widening gaps in regional development are increasingly emerging. Cities and towns are the abodes for gathering and enriching material and spiritual wealth as important symbols of human civilization and progress. The coordinated development of urbanization and the ecological environment is an important way to promote China's new type of urbanization. Urbanization is an important symbol of national modernization and a major driving force for the country's socio-economic development. The Yellow River basin in Inner Mongolia is an important part of China's ecological security strategy.

As an important functional economic zone in western China, the Yellow River cluster of Inner Mongolia is an important part of China's ecological security barrier and a secure base for energy and resource security. The rapidly developing urbanization process has put great pressure on resources and the environment in the ecological environment unique to China. In effectively solving the contradictions in human-land relations in the Yellow River basin of Inner Mongolia, qualitative development is more important than quantitative indicators. This will help the high-quality development of the urban agglomeration in the Yellow River valley of Inner Mongolia. The urban agglomeration in the Yellow River basin of Inner Mongolia is located in a semi-arid desert area, with extremely scarce water resources, a fragile ecological environment, low ecological carrying capacity, numerous cities, complex industrial types, and high population density. The econom-

ic and social development in this region is highly dependent on the water resources of the Yellow River basin. The rapid development of urbanization and industrialization has accelerated the large-scale exploitation of regional natural resources, energy and mineral resources, continuous expansion of urban settlements, and expansion of transportation routes and infrastructure. The urban cluster in the Yellow River basin of Inner Mongolia is an important part of the national ecological security strategic model, playing an important role in ensuring the country's ecological security, supporting the regional economic base, and shaping a strategic model for the new type of urbanization process in ecologically fragile areas.

In this study, based on the theory of system composition, the interactive relationship between the new type of urbanization process and the ecological environment of urban agglomerations in the Yellow River basin is studied. A collaborative development model and optimization path for coordinated development of the new urbanization and ecological environment is proposed to achieve high-quality sustainable development of the urban agglomeration in the Yellow River basin of Inner Mongolia.

A new type of urbanization is a more scientific, efficient, and sustainable model of urban development, aimed at development that ensures the social and economic security of people in the relationship between urban modernization and the ecological environment. Sustainable urban development refers to achieving a highly developed urbanization and modernization by optimizing the sustainable growth and structural composition of cities at a certain time and spatial scale. The process of a new type of urbanization is based on introducing and studying the international ideas and experiences of advanced urban construction and development. Optimizing urban planning, improving urban management, improving living conditions and environmental quality in cities, ensuring positive interaction and integration of urban and rural areas, and implementing urban-rural integration are the main tasks of the new type of urbanization processes.

The second chapter of the dissertation, entitled **"Building a Model for Studying the Relationship between the New Type of Urbanization Process and the Ecological Environment, and Their Interconnection in the Yellow River Basin of Inner Mongolia,"** mainly studies the current situation in the Yellow River basin of Inner Mongolia, changes in urbanization and the ecological environment, and their interrelationships. A model has been created to scientifically measure the relationship between the new type of urbanization process and the ecological environment in the Yellow River basin of Inner Mongolia.

Due to its unique geographical location, vast area, rich resources, energy and industrial concentration, the Yellow River basin in Inner Mongolia is the basis for the construction of "two barriers", "two bases" and "one bridge". The urban agglomeration of the Yellow River basin in Inner Mongolia is located in the northern part of the Yellow River basin. The basin has meadows, forests, wetlands, rivers, lakes, the Gobi desert and various landforms. The urban agglomeration in the Yellow River basin of Inner Mongolia is an area rich in energy sources such as coal, oil and gas. In recent years, relying on the rapid development of energy, chemicals,

non-ferrous metals and other industries, the region has become an important energy, chemical, raw materials and basic industrial base in western China.

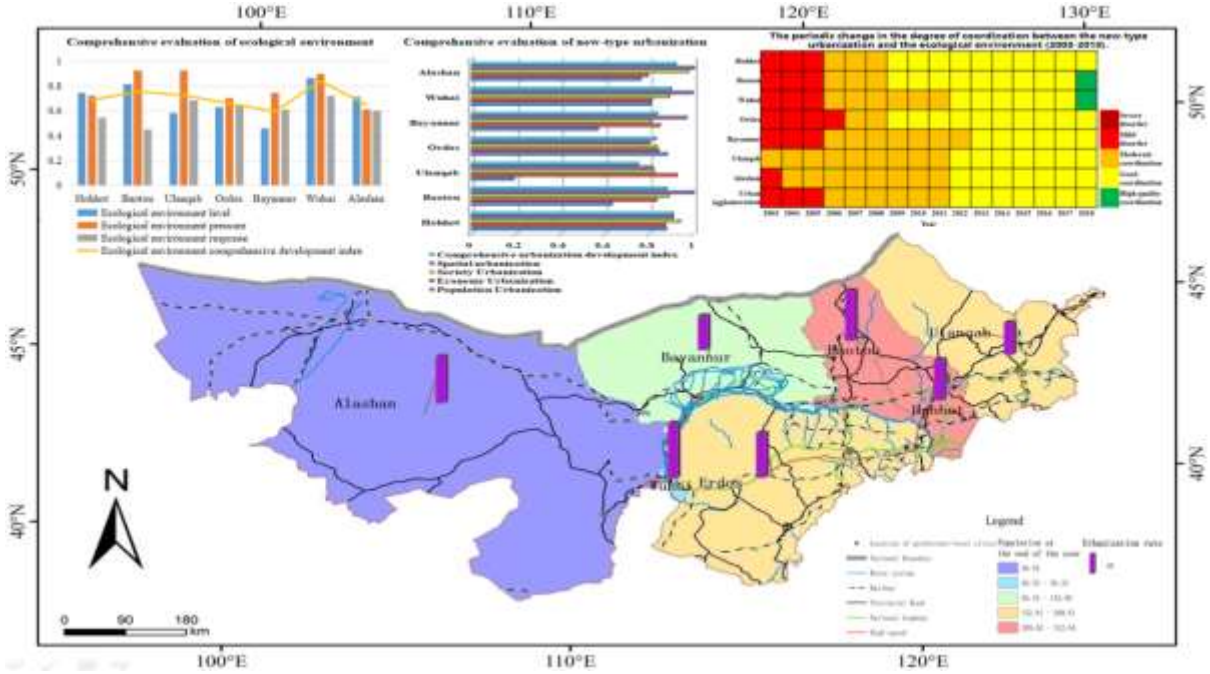


Figure 1. Administrative zoning map of the Inner Mongolia Autonomous Region.

The three central cities of the urban agglomeration in the Yellow River basin of Inner Mongolia - Hohhot, Baotou and Ordos - are the leaders of the entire region. The three cities are a powerful trio in terms of gross domestic product, accounting for 53% of the region's total output. In addition, the Hohhot-Baotou-Ordos-Ulanqab urban cluster is an important urban cluster in the Yellow River basin. In recent years, the Hohhot-Baotou-Ordos-Ulanqab urban cluster has taken the lead in collaborative and integrated development.

The dynamics of the urban population plays an important role in the formation and development of the urban agglomeration. In particular, the urban population of Inner Mongolia grew significantly between 2003-2018, reaching 12.7 million people or an urbanization rate of 69.7% in 2018, which is 13.7 percentage points Supreme than the national average. The populations of Hohhot and Ordos grew very rapidly during this period, while the urbanization rate increased even more in Wuhai and Baotou. Over the last 10 years, the cities with the highest and lowest urbanization rates were Wuhai, Baotou, Alasha, Ordos, Hohhot, Bayannur and Ulanqab. Among them, Wuhai and Baotou are traditional industrial cities in the Inner Mongolia Autonomous Region with relatively high urbanization rates. The natural growth rate of the population of urban agglomerations in the Yellow River basin of Inner Mongolia generally showed a stable and positive growth trend.

As the capital of Inner Mongolia Autonomous Region, Hohhot performs a strong central agglomeration function, attracting many people from surrounding small and medium-sized cities. Cities like Ordos, Baotou and Hohhot are experiencing rapid economic development. Large investments have been made in the

Table 1.

New-type Urbanization–Ecological Environment system evaluation index system and weight calculation results

System level	Criterion layer	Weight	Index layer	Attribute	Weight
Urbanization（U）	Population Urbanization	0.1440	U1Year-end Population（10,000 people）	＋	0.3954
			U2Natural population growth rate（%）	＋	0.2464
			U3rban employment at the end of the year（people）	＋	0.3582
	Economy Urbanization	0.1851	U4Gross regional product（10,000 yuan）	＋	0.2478
			U5Percapita gross regional product（yuan）	＋	0.2356
			U6Total industrial output above scale（10,000 yuan）	＋	0.2662
			U7The tertiary industry output value of GDP（%）	＋	0.2504
	Society Urbanization	0.3419	U8Total social investment in fixed assets（10,000 yuan）	＋	0.2726
			U9Educational funds expenditure（10,000 yuan）	＋	0.2630
			U10Number of health technicians（people）	＋	0.3214
			U11Urban registered unemployment rate（%）	－	0.1430
	Spatial Urbanization	0.3289	U12Urban built-up area（km^2）	＋	0.2457
			U13Road eara per sitizen（m2/people）	＋	0.2725
			U14Population density（people / km^2）	＋	0.4818
Ecological environment（E）	Ecological environment status	0.4018	E1Green coverage rate of urban built-up area（%）	＋	0.3018
			E2Per capita park green area（m^2/people）	＋	0.2577
			E3Annual average temperature（℃）	＋	0.1881
			E4Total annual precipitation（mm）	＋	0.2524
	Ecological environment pressure	0.3295	E5Annual water supply（10,000 ton）	－	0.2787
			E6Industrial Waste Water Discharged（10,000 ton）	－	0.1551
			E7Industrial sulfur dioxide emissions（10,000 ton）	－	0.4061
			E8Industrial soot (powder) emissions（10,000 ton）	－	0.1601
	Ecological environment response	0.2687	E9Percentage of Sewage Disposed（%）	＋	0.2844
			E10Harmless disposal rate of domestic waste（%）	＋	0.1827
			E11Industrial solid waste comprehensive utilization（%）	＋	0.2660
			E12Planting area（10,00 hm^2）	＋	0.2669

Note * This table was prepared independently by the authors.

fixed assets of Ordos city, educational expenditures have increased, and the economy is growing rapidly, resulting in a declining unemployment rate. The transformation of rural areas into cities, the constant expansion of cities, and the continuous optimization of urban internal spaces is a process. Among them, the area of cit-

ies, the area of roads per capita, and population density are the best indicators of urbanization development. Between 2003-2018, the area occupied by urban agglomerations in the Yellow River basin of Inner Mongolia expanded from 398.9 sq. km to 815.03 sq. km, an increase of 2.04 times. Due to the rapid expansion of urban areas, Hohhot, Baotou and Ordos currently have the largest residential areas. The area of urban roads per capita increased from 10.13 square meters in 2003 to 27.34 square meters in 2018, which allowed for the improvement of the urban transport system and support for regional economic development.

The analysis of the current state of the ecological environment in the Yellow River basin of Inner Mongolia is mainly based on the state of the ecological environment, the pressure on the ecological environment, and the response of the ecological environment. With the development of urbanization and industrialization, the demand for water resources in cities is increasing, leading to contradictions between domestic water consumption, industrial and agricultural water production, and the water ecological environment. The green coverage area per capita of the urban agglomeration in the Yellow River basin increased from 5.35 square meters in 2003 to 24.05 square meters in 2018, which was crucial for environmental management. Within the urban agglomeration, Ulanqab took the first place with 25.95 square meters of green parks per capita, followed by Ordos with 20.15 square meters, and Alashan, Hohhot, Wuhai, Bayannur and Baotou. The green cover and green area of parks in urban settlements are also increasing, and environmental protection efforts are yielding positive results.

A model for measuring the coordination of the relationship between the new type of urbanization and the ecological environment system in the Yellow River basin of Inner Mongolia, namely a comprehensive assessment index system for the new type of urbanization and the ecological environment (Table 1), was developed. This is an important theoretical basis for the empirical study of the relationship between the new type of urbanization and the ecological environment in the Yellow River basin of Inner Mongolia.

Relationship degree model: The relationship degree $C \in [0,1]$, the closer ***C is to 1***, the greater the relationship degree, indicating the degree of influence between the two systems. ***U(x)*** represents the comprehensive development index of urbanization, ***E(y)*** represents the comprehensive development index of the ecological environment; ***n*** and ***m*** are the indicators of the two systems. The calculation formula is as follows:

$$U(x) = \sum_{i=1}^{n} \omega_i x_{ij} \quad (1)$$

$$E(y) = \sum_{i=1}^{m} \omega_i y_{ji} \quad (2)$$

$$C = \sqrt{\frac{U(x) \cdot E(y)}{\left(\frac{U(x) + E(y)}{2}\right)^2}} \quad (3)$$

Model of coordination degree of connection: ***T*** is the comprehensive development index, ***a*** and ***b*** are undetermined coefficients. Since the two systems are considered equally important, ***a = b*** = 0.5 is taken. The coordination degree $D \in [0,$

1], the closer ***D*** is to 1, the Supreme the degree of coordinated development of the two systems. The calculation formula is as follows:

$$T = aU(x) + bE(y) \quad (4)$$

$$D = \sqrt{C \times D} \quad (5)$$

Decoupling Model: DI_t is the decoupling index of the ecological environment from urbanization during ***the period t***, E_t and E_{t-1} represent the comprehensive index of the ecological environment in years ***t*** and ***t-1***, respectively. U_t and U_{t-1} represent the comprehensive index of urbanization in years ***t*** and ***t-1***, respectively.

$$DI_t = \frac{(E_t - E_{t-1})/E_{t-1}}{(U_t - U_{t-1})/U_{t-1}} \quad (6)$$

Obstacle Factor Diagnosis Model: $\bar{o}_j$ - weight of the j-th index; I_j - the difference between the optimal target value and the actual value of each indicator, which can be expressed as 1- r_{ij} (the difference between the standardized value of each indicator and 1).

$$O_j = \frac{I_j \times \omega_j}{\sum_{j=1}^{m} I_j \times \omega_j} \quad (7)$$

The internal link and coordination of the urbanization and ecological environment systems is the key to the sustainable development of the urban agglomeration in the Yellow River basin of Inner Mongolia.

The third chapter of the dissertation is titled **"Empirical study of the relationship and interrelation between the new type of urbanization process and the ecological environment"**. This chapter examines the comprehensive development of the new type of urbanization process and the ecological environment, as well as the relationship between new type of urbanization and the ecological environment. In the urban agglomeration of the Yellow River Basin in Inner Mongolia, a new type of urbanization process and ecological environmental constraint factors were identified, and based on empirical research findings, prospects for developing the urban agglomeration's ecological environment in a coordinated manner were proposed.

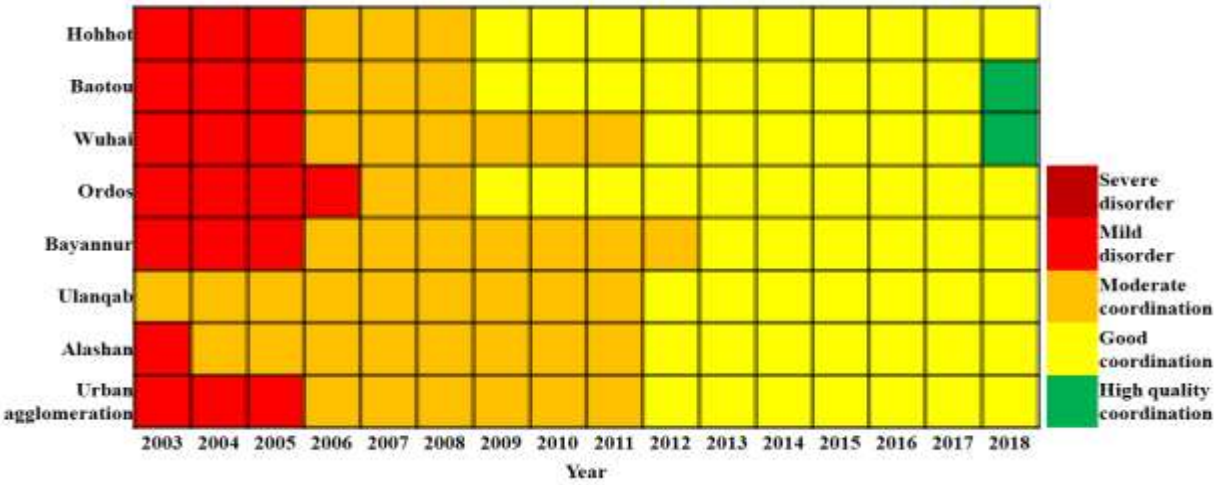


Figure 2. The periodic change in the degree of coordination between the new-type urbanization and the ecological environment (2003-2018).

The comprehensive development index of the urban agglomeration in the Yellow River Basin of Inner Mongolia indicates rapid development in terms of population, economic, social, and spatial systems from 2003 to 2018, reflecting a high degree of urbanization. From 2003 to 2011, the government actively implemented measures such as intensive land use, increasing forest areas, conserving water resources, saving energy, and reducing industrial waste. The integrated ecological development index of the urban agglomerations in the

Yellow River Basin of Inner Mongolia showed fluctuating variations during the study years. Specifically, the degree of coupling between urbanization and the ecological environment increased from 0.4569 in 2003 to 0.8797 in 2018, with an average annual growth rate of 2.59 %. From 2003 to 2011, the pressure index on cities decreased significantly due to government measures such as expanding forests, saving water and energy. However, from 2011 to 2018, the pressure index showed a gradual increasing trend due to increased water consumption.

The analysis of the relationship between the new-type urbanization and the ecological environment was carried out using the Composite Index based on the classification criteria for distinguishing ***ΔE, ΔU, DI,*** and separation relationships.

Table 2.

Composite Index of Growth Rate and Periodic Change between New Type of Urbanization and Environmental Interdependence (2003-2018)

Year	ΔE	ΔU	DI	Coupling Degree	Year	ΔE	ΔU	DI	Coupling Degree
2004	0.0166	-0.0467	-1.3918	Strong Negative Coupling	2012	0.0189	0.0755	0.1784	Weak
2005	0.0590	-0.0465	-3.8435	Strong Negative Coupling	2013	0.0946	0.0450	1.7160	Expanding Negative
2006	0.0219	0.0537	0.7447	Weak Coupling	2014	0.0422	0.0392	0.8278	Expanding Coupling
2007	0.0769	0.0746	1.9458	Expanding Negative Coupling	2015	0.0609	0.0081	5.8176	Expanding Negative
2008	0.0149	0.0148	1.6471	Expanding Negative Coupling	2016	0.0427	0.0913	0.3411	Weak
2009	0.1179	-0.0036	-51.9575	Strong Negative Coupling	2017	0.0032	-0.0093	-0.2774	Strong Negative
2010	0.0779	0.0124	7.2168	Expanding Negative Coupling	2018	0.0123	0.0364	0.2655	Weak
2011	0.0876	-0.0752	-1.1531	Strong Negative Coupling					

Note* This table is compiled based on the results of research conducted by the author.

The interdependence between the comprehensive development index of urbanization (2003-2018) and the development index of the ecological environment in the Yellow River Basin of Inner Mongolia reflects a long-term and recurrent interactive adaptation process between the urbanization and eco-environmental sys-

tems, involving strong negative, weak, feeble, and extended negative coupling.In 2018, the interdependence between urban development and the ecological environment was weak, indicating a relatively ideal state of urban development, where the development level of the new-type urbanization and the level of the urban ecological environment were improved at this stage. The composite urbanization level index increased by 0.7320 over 14 years, with an average annual growth rate of 5.23%. However, the urbanization rate slowed down after 2016 due to the deceleration of economic growth. In 2018, the integrated ecological environment index of the Yellow River City cluster was 0.7018, a slight increase of 0.2696 from 2003 to 2018, with an average annual growth rate of 1.685%. This suggests that the economic driving force for the development of urban agglomerations in Inner Mongolia weakened due to ecological constraints and other factors, and the population stabilized, leading to a slower pace of urban sprawl. Although the degree of coordination between urbanization and the ecological environment in the urban cluster of the Yellow River Basin in Inner Mongolia maintained a continuous growth trend, its essence is the result of the increasing fluctuation in the comprehensive development index of the ecological environment. The comprehensive development index of urbanization from 2003 to 2018 indicates a negative impact of the urban agglomeration in the Yellow River Basin of Inner Mongolia on the ecological environment.

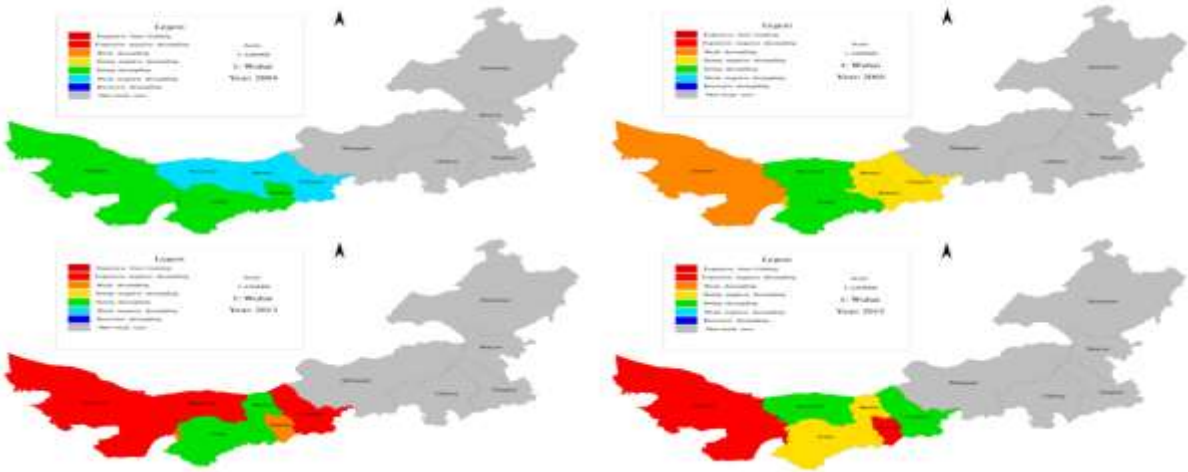


Figure 3. Spatial distribution of the separation index between the new-type urbanization and the ecological environment.

The periodic change scheme of the coupling index between the ecological environment and urbanization processes (Figure 4) shows a negative situation in Hohhot, Wuhai, Ordos, Bayannur, Ulanqab, and Alashan, while Baotou exhibits a somewhat positive state. In the interdependence between the new-type urbanization and the ecological environment in the urban cluster of the Yellow River Basin in Inner Mongolia, the main constraints in the urbanization level index layer of the 7 cities in 2018 are: natural population growth rate-U2, total value of industrial output Supreme than the specified volume-U6, total investment in fixed assets-U8, and gross regional product per capita-U5, which are mainly manifested in the sub-systems of population urbanization, economic urbanization, and social urbanization.

During the urbanization process, the limitations of land resources, scarcity of industrial land resources, rising land prices, and complex issues faced by urban settlements in economic and social development emerged. The five cities of Hohhot, Baotou, Wuhai, Ordos, and Ulanqab need to accelerate the optimization and modernization of their industrial structures, strengthen green development, save energy, fully implement measures to reduce emissions from industrial enterprises, save water, optimize water use, protect ecological systems, systematically treat environmental pollution, and enhance the efficient and intensive use of water resources in the river basin.

CONCLUSION

1. The interaction and regulation mechanisms between urbanization and the ecological environment are complex and interdependent. Urbanization leads to changes in the urban ecological environment due to economic growth, regional expansion, and increased population flows. This negatively impacts the demand for water, land resources, and energy, as well as changes in regional land use structures. The ecological environment also limits the impact of urbanization on the environment through resource availability, environmental capacity, city size, location, industrial structure, and development pace. These interrelationships need to achieve a balance of positive and negative feedback mechanisms through institutionalized, policy-oriented, and institutionalized structural frameworks.

2. The periodic development of urban agglomerations in the Yellow River Basin of Inner Mongolia has transitioned from a developed ecological environment to a lagging environment. The growth rate of the urbanization level has been faster than the improvement rate of the ecological environment, resulting in a mismatch between the urban development stages and the ecological environment. To achieve high-quality new-type urbanization, urban agglomerations in Inner Mongolia need to improve the ecological environment, enhance the quality of the ecological situation, and ensure proportional and coordinated development of urbanization levels.

3. The Yellow River Basin in Inner Mongolia is experiencing a continuous growth trend in the degree of coordinated coupling between urbanization and ecological systems. This development has transitioned from a high-level coupling stage to a high-quality coupling stage. The degree of interdependence and coordination between urbanization and the ecological environment in the Yellow River Basin of Inner Mongolia generally showed a continuous growth trend. Achieving harmonious coupling between urbanization and the ecological environment is an important task that requires urgent attention for urban agglomerations.

4. The share of the tertiary industry in urban agglomerations along the Yellow River Basin in Inner Mongolia exhibits a fluctuating growth trend. From 2003 to 2009, while the development rate of the secondary industry was high, the tertiary industry was in a stage of rapid development. From the perspective of urban agglomerations, Hohhot and Baotou achieved a high level of urbanization, with the share of the tertiary industry being much Supreme than in the other five cities. This should contribute to economic growth, urbanization, and the rapid and high-quality development of ur-

ban agglomerations in the Yellow River Basin of Inner Mongolia.

5. Coupling models have been applied to reveal the interdependence between urbanization and the ecological environment. Urban agglomerations in the Yellow River Basin of Inner Mongolia have experienced negative consequences on the ecological environment. The sustainability of urbanization in the ecological environment reflects the poor state of its level. Although the development of urban agglomerations and urbanization has had a negative impact on the ecological environment for a long time, it remains within the carrying capacity of the ecological environment. Even though it has not reached the carrying capacity limit of the ecological environment, attention should be paid to the negative impact of the urbanization process, preventing severe negative impacts, and strengthening the high-quality development of urban agglomerations and urbanization. It is advisable to further strengthen the stability of the coupling between urbanization and the integrated ecological environment index.

6. The constraint degree model is used to identify the main constraint factors. Population urbanization and economic urbanization remain major constraints to the high-quality development of urban agglomerations in the Yellow River Basin of Inner Mongolia. Regarding the ecological environment in the urbanization index layer, the main constraints for continuously improving the quality of the ecological environment are: natural population growth rate-U2, industrial output value Supreme than the specified volume-U6, total investment in fixed assets-U8, gross regional product per capita-U5; The main constraints in the ecological environment index layer are the integrated utilization rate of solid industrial waste-E11, average annual temperature-E3, forest area-E12, and total annual water supply-E5.

НАУЧНЫЙ СОВЕТ ПО ПРИСУЖДЕНИЮ УЧЕНЫХ СТЕПЕНЕЙ DSc.03/30.12.2019.Gr.01.06 ПРИ НАЦИОНАЛЬНОМ УНИВЕРСИТЕТЕ УЗБЕКИСТАНА

НАЦИОНАЛЬНЫЙ УНИВЕРСИТЕТ УЗБЕКИСТАН

ЧЖАО ЮНФЕН

ВОПРОСЫ ИССЛЕДОВАНИЯ ВЗАИМОСВЯЗЕЙ НОВОГО ТИПА УРБАНИЗАЦИИ И ОКРУЖАЮЩЕЙ СРЕДЫ В БАССЕЙНЕ РЕКИ ХУАНХЭ ВНУТРЕННЕЙ МОНГОЛИИ (КИТАЙСКАЯ НАРОДНАЯ РЕСПУБЛИКА)

11.00.02- Экономическая и социальная география

АВТОРЕФЕРАТ ДИССЕРТАЦИИ ДОКТОРА ФИЛОСОФИИ (PhD) ПО ГЕОГРАФИЧЕСКИМ НАУКАМ

Ташкент – 2024

Тема диссертации доктора философии (PhD) по географическим наукам зарегистрирована в Высшей аттестационной комиссии при Министерстве Высшего образования, науки и инноваций Республики Узбекистан за номером B2023.4.PhD/Gr284.

Диссертация выполнена в Национальном университете Узбекистана имени Мирза Улугбека.

Автореферат диссертации на трёх языках (узбекский, английский, русский (резюме)) размещен на веб-странице Научного совета по адресу (www.nuu.uz) и на Информационно-образовательном портале «Ziyonet» (www.ziyonet.uz).

Научный руководитель:	**Тожиева Зулхумор Назаровна** доктор географических наук, профессор
Официальные оппоненты:	**Жумаханов Шавкатжон Заиржанович** доктор географических наук (DSc), доцент
	Ходжаева Гуля Аширбаевна кандидат географических наук, доцент
Ведущая организация:	Чирчикский государственный педагогический университет

Защита диссертации состоится «13» июля 2024 года в 12:00 часов на заседании Научного совета DSc.03/30.12.2019.Gr.01.06 при Национальном университете Узбекистана. (Адрес: 100174, г. Ташкент, ул. Университетская, дом 4. Тел.: (+99871) 227-12-14, факс: (+99871) 246-53-21; 246-02-24; E-mail: ik-geografiya.nuuz@mail.ru. Национальный университет Узбекистана, факультет Географии и геоинформационных систем).

С диссертацией можно ознакомиться в Информационно-ресурсном центре Национального университета Узбекистана (зарегистрировано за № 58). Адрес: 100174, г. Ташкент, ул. Университетская, дом 4. Тел.: (+99871) 246-67-71.

Автореферат диссертации разослан 3 июля 2024 года.

(реестр протокола рассылки № 62 от 3 июля 2024 года).

Ш.М. Шарипов
Председатель научного совета по присуждению учёных степеней, д.г.н., доцент

К.А. Хакимов
Ученый секретарь Научного совета по присуждению ученых степеней, д.ф.г.н. (Phd)

М.Т. Миракмалов
Председатель научного семинара при Научном совете по присуждению учёных степеней, д.г.н., доцент

ВВЕДЕНИЕ (Аннотация диссертации доктора философии (PhD))

Цель исследования. Разработка предложений и рекомендаций для решения задачи согласованного развития урбанизации и окружающей среды на основе определения факторов, влияющих на взаимосвязь урбанизации и окружающей среды в городских агломерациях бассейна реки Хуанхэ во Внутренней Монголии**.**

Объект исследования Выбран агломерации бассейна реки Хуанхэ во Внутренней Монголии (КНР) как новый тип урбанизационного процесса и городской среды.

Научная новизна исследования:

Усовершенствованы методы исследования (методы количественного анализа и модели интегральных индексов) интерактивной связи урбанизации и окружающей среды в бассейне реки Хуанхэ во Внутренней Монголии (Китай);

С точки зрения системной теории разработана количественная аналитическая модель взаимодействия, и связь урбанизации и окружающей среды, а также макроскопическом масштабе, обоснована реакция окружающей среды на процесс урбанизации;

Разработаны закономерности и механизмы пространственно-временной динамики взаимодействия урбанизации и окружающей среды, выявлены основные (модель барьерного уровня, критериальный слой и слой индексов) барьерные факторы, влияющие на согласованное развитие;

На базе программы ArcGIS созданы карты региональных изменений степени согласованности между новым типом урбанизации и окружающей средой в бассейне реки Хуанхэ во Внутренней Монголии, а также карты территориального распределения индексов взаимосвязи;

Разработаны модель регионального экономического роста, соответствующая экологическому и ресурсному потенциалу окружающей среды и ресурсам, направление оптимизации процесса качественной урбанизации, а также стратегия согласованного развития.

Внедрение результатов исследования.

взаимосвязи нового типа урбанизации и экологической среды в бассейне реки Хуанхэ во Внутренней Монголии:

Усовершенствованный метод исследования интерактивной взаимосвязи урбанизации и окружающей среды в бассейне реки Хуанхэ во Внутренней Монголии внедрен в практику Цзининского университета Нормал при оценке воздействия процесса урбанизации на окружающую среду (Школа географии и планирования Цзининского университета Нормал). Университет Китайской Народной Республики, номер ссылки 20231204-002 от 4 декабря 2023 г.). В результате это позволило повысить точность оценки влияния процесса урбанизации на экологическую ситуацию;

Из теоретических основ исследования взаимосвязи урбанизации и экологической среды, созданных с точки зрения теории системной интеграции, скоординированного развития нового типа урбанизации и

экологической среды в городской агломерации бассейна реки Хуанхэ Внутренней Монголии, Китая, эволюция взаимодействия в пространстве и времени процессов, законов и законов, модели совместного развития экологической среды (справка № 20231204-002 от 4 декабря 2023 г., Цзининского университета Нормал, факультет географии и планирования, Китайская Народная Республика). В результате это позволило планировать новые типы процессов урбанизации, защищать окружающую среду и осуществлять необходимые меры во Внутренней Монголии;

Разработанные закономерности и механизмы динамических изменений во времени и пространстве взаимодействия между урбанизацией и экологической средой, а также выявление основных барьеров (модель барьерного уровня, критериальный и индексный слой), влияющих на согласованное развитие, использованы для обоснования и выявления закономерностей процессов взаимодействия во времени и пространстве между новым типом урбанизации и экологической средой в бассейне реки Хуанхэ во Внутренней Монголии (Сертификат Школы географических наук и туризма Синьцзянского педагогического университета, Китайская Народная Республика, дата 5 декабря 2023 года No 20231205-002). В результате появилось возможность теоретически изучить взаимоотношения человека и земли в экологических уязвимых регионах и разработать модели и меры совместного развития урбанизации нового типа и экологической среды городских агломераций.

Модель регионального экономического роста, пропорциональная окружающей среде и ресурсному потенциалу, а также путь оптимизации и скоординированная стратегия развития для высококачественного процесса урбанизации, нового типа процесса урбанизации и экологической среды в бассейне реки Хуанхэ во Внутренней Монголии на базе Программное обеспечение ArcGIS Создание карт территориальных изменений степени координации и карт территориального разделения индекса связнности были использованы в региональной политике для обоснования новых типов процессов урбанизации, городских агломераций и моделей взаимозависимого развития экологической среды (КНР). Китая, Синьцзянский педагогический университет, Школа географии и туризма, номер 20231205-002 от 5 декабря 2023 г.). В результате Внутренняя Монголия позволила усовершенствовать модели взаимозависимости между новым типом процесса урбанизации и экологической средой, а также будущими стратегическими планами в бассейне реки Хуанхэ.

Структура и объем диссертации. Диссертационная работа состоит из введения, трех глав, заключения, списка использованной литературы и приложений. Общий объем диссертации составляет 162 страниц, из них непосредственно текстовая часть - 140 страниц.

E’LON QILINGAN ILMIY ISHLAR RO‘YXATI
LIST OF PUBLISHED WORKS
СПИСОК ОПУБЛИКОВАННЫХ РАБОТ

I-bo‘lim (I part; I част)

1. Zhao Yongfeng, Zheng Hui. Research on the Interaction Coupling Relationship between Population,Economy, Resources and Environment in Inner Mongolia//Resource Development & Market. – Chengdu: 2021. Issue 06,vol.37. ISSN: 1005-8141.-p.705-715.doi:10.3969/j.issn. 1005-8141. 2021. 06. 010. (CN: 51-1448/N).

2. Zheng Hui, Zhao Yongfeng. The Relationship of Coupling Coordination between Population Structure and Regional Economy and the Diagnosis of the Hindering Factors: A Case Study in Baotou, China // Porta Linguarum. – Tashkent: 2022.38, 172-190. ISSN paper edition:1697-7467, ISSN digital edition: 2695-8244. -p.172-190. DOI: 10.30866/porta.v0i36.13990. **(**JIF: 2022. 1.2;)

3. ZhaoYongfeng, Tojiyeva Z.N. Studyon the coupling relationship between population, resources, environment, and economyin Hohhot-Baotou-Ordos-Ulanqab Urban agglomeration, China // Ilim hám jámiyet. – Nukus: 2022. №3.ISSN 2010-720X. -p.29-31. (11.00.00, №10).

4. Yong-Feng Z, Hui Z. Study on the coupling and coordinated development relationship between Higher education and regional economy in inner Mongolia // O‘zbekiston milliy universiteti Xabarlari. – Tashkent: 2022. 1/10, ISSN:2181-7324. -p.60-62. (11.00.00, №7).

5. Zhao Yongfeng, Zheng Hui, Z.N.Tojiyeva. Study On The Coupling Relationship Of Urbanization-Social Economy-Ecological Environment In Hohhot-Baotou-Ordos-Ulanqab Urban Agglomeration, China//Nature and Science. Volume 20, Number 3 March 25, 2022 ISSN: 1545-0740.- p. 30-43. (11.00.00, №4).

6. Zhao YONG-FENG, Zulhumor TOJIEVA. Economic Geographical Strategies for Coordinating Development of Population Structure and Regional Economy in Inner Mongolia, China //O‘zbekiston milliy universiteti xabarlari. – Tashkent: 2023. 3/2/1, ISSN:2181-7324. -p.305-308. (11.00.00, №7).

7. Zhao Yongfeng, Zheng Hui, Z.N.Tojiyeva.(2023). Analysis of coupling process and decoupling between new-type urbanization and ecological environment: A case study of Hohhot，China//ISJ Theoretical & Applied Science. –Philadelphia: 2023. Issue06,vol.122.p-ISSN:2308-4944 (print). e-ISSN: 2409-0085 (online). -p.426-440. https:// dx.doi.org/10.15863/TAS.2023.06.122.68. (ISRA:2021/4/971;№22).

8. Zhao Yong-feng. Studyon the Relationship between Secondary Education and Regional Economy in Inner Mongolia Autonomous Region, China//Scholar. – Tashkent: 2023.Issue 26, vol1. ISSN: 2181-4147.-p. 57-68. (SJIF: 2023: 3.156).

9. Zheng Hui, Zhao Yongfeng. A study on vocational skills training model of normal University students from the perspective of Subject core literacy: A case study of Geography Science majors // Teaching Reference of Middle School Geography. – Xi'an: 2022. Issue 4, ISSN: 1002-2163. -p.86-89. (CN: 61-1035/G4).

10. Zhao Yongfeng, Zheng Hui. Research on the construction of teacher education curriculum system based on OBE concept//Teaching Reference of Middle School Geography. –Xi'an:2023. Issue 29, ISSN: 1002-2163. -p.9-13. (CN: 61-1035/G4).

11. Zhao Yongfeng, Zheng Hui. Research on effective integration mode of online and offline teaching from the perspective of discipline core literacy -- A case study of Geography Teaching Design in Middle School//Journal of Jining Normal University. –Ulanqab: 2023. Issue 05,vol.45. ISSN: 2095-3771.-p.28-32. (CN:15-1360/G4).

12. Zhao Yongfeng, Zheng Hui. Study on the coupling relationship between population structure change and regional economy in Inner Mongolia: A case study of Hohhot // Statistics and Management. – Shijiazhuang: 2023. Issue 4, ISSN: 1674-537X. -p.56-63. DOI: 10.16722/j. ISSN.1674-537x.2023.04.009. (CN: 13-1395/C).

13. Zhao Yongfeng. Study on response of ecological environment in urbanization process of Ordos, China //Economy and society. ISSN 2225-1545 01(116)2024. (11.00.00, №11).

14. Zhao Yongfeng. Research on the coupling relationship between tourism and new-type urbanization in Inner Mongolia, China//Economy and society. ISSN 2225-1545 01(116)2024. (11.00.00, №11).

II-bo‘lim (II part; II част)

15. Tojieva Z.N., Zhao Yongfeng, Zheng Hui. O‘zbekiston xalqaro xamkorligida tashqi iqtisodiy faoliyatining yangi jihatlari. Materials of the international conference ―Independent development path of Uzbekistan: the lessons of history and the future perspectives‖.–Tashkent. 2021. -p. 276-277.

16. Tojieva Z.N., Zheng Hui, Zhao Yongfeng, Abduraimova SH. Toshkent viloyati aholisi ko‘payishi va uni toza ichimlik suvi bilan ta’minlash muammolari. International scientific and practical conference.–Tashkent. 2022. -p.254-257.

17. Zhao Yong-feng, Zheng Hui, Zulkhumor Tojiyeva Nazarovna. Study on the coupling relationship between population structure and industrial structure in Inner Mongolia. International scientific and practical conference. –Philadelphia. 2023. -p.22-28.

18. ZhaoYong-feng. Coordinated development strategyfor urban agglomeration urbanization and ecological environment of the Xuanxe River basin in Inner Mongolia, China. International scientific and practical conference. – Tashkent. 2023. -p.283-286.

Avtoreferat « O‘zbekiston geografiya jamiyati axboroti » jurnali tahririyatida tahrirdan o‘tkazilib, o‘zbek, rus va ingliz tillaridagi matnlar o‘zaro muvofiqlashtirildi.

Bosmaxona litsenziyasi:

9338

Bichimi: 84x60 $^{1}/_{16}$. «Times New Roman» garniturasi.
Raqamli bosma usulda bosildi.
Shartli bosma tabog‘i: 3,5. Adadi 100 dona. Buyurtma № 32/24.

Guvohnoma № 851684.
«Tipograff» MCHJ bosmaxonasida chop etilgan.
Bosmaxona manzili: 100011, Toshkent sh., Beruniy ko‘chasi, 83-uy.