"TOSHKENT IRRIGATSIYA VA QISHLOQ XO'JALIGINI MEXANIZATSIYALASH MUHANDISLARI INSTITUTI" MILLIY TADQIQOT UNIVERSITETI

FAN: Quruqlik gidrologiyasi

MAVZU 03

Daryo havzasining tabiiy geografik xususiyatlari. Daryo vodiysi va o'zani

NAZARALIYEV DILSHOD VALIDJANOVICH

Gidrologiya va gidrogeologiya kafedrasi dotsenti

Reja:

- Daryo havzasining geografik o‘rni va geologik tuzilishi. Daryo havzasining relefi va iqlim sharoiti.Daryo havzasining tuproq va o‘simlik qoplami, gidrografiyasi.Daryo havzasining morfometrik xususiyatlari
- Daryo vodiysi elementlari. Daryo vodiysining kondalang qirqimi.Daryo o‘zani va qayir. Vodiy tubi, talveg, terrasalar, yonbag‘irlar va vodiy qoshi.

Daryo oqimi

yomg‘ir suvlaridan

hamda

muzliklarning erishi hisobiga

hosil bo‘ladi

Bu jarayonlarda

yer sirtida hosil bo‘lgan suvning bir qismi

yer ostiga shimiladi

bir qismi bug‘lanadi

faqат qolgan qismigina oqim hosil bo‘lishida ishtirok etadi.

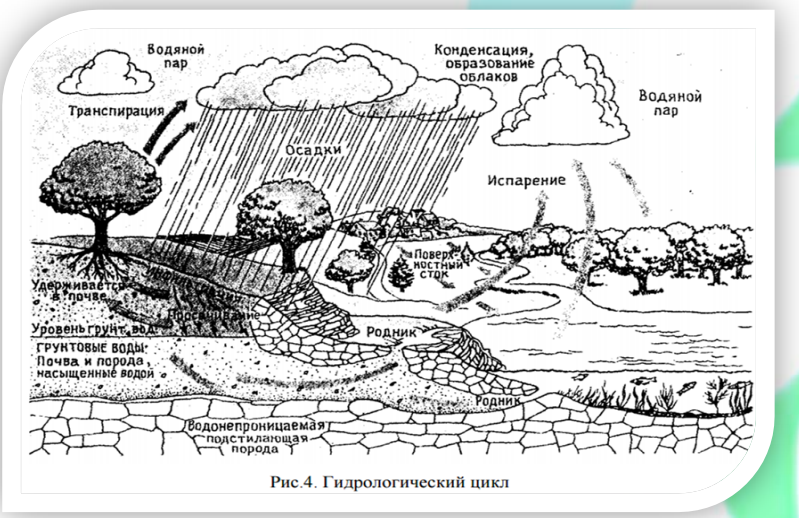


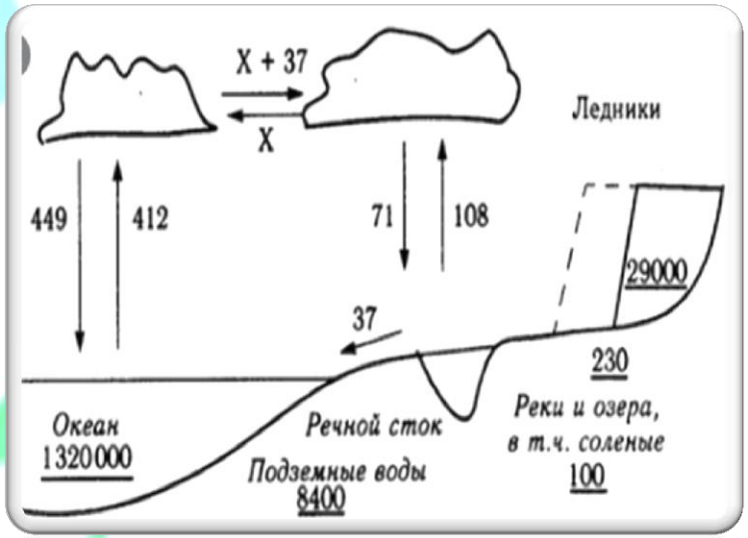
Рис.4. Гидрологический цикл

Oqim hosil sharti

Yomg‘irning yog‘ishi yoki qor va muzlikning erish jadalligi

yer ostiga shimilish hamda bug‘lanishning birgalikdagi jadalligidan katta bo‘lgandagina

oqim hosil bo‘ladi.



Dastavval oqim jilg‘alar ko‘rinishida bo‘ladi

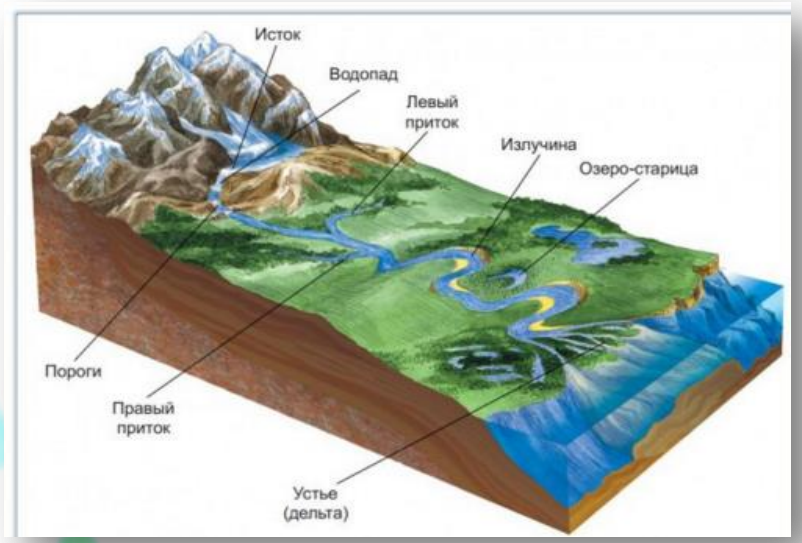
jilg‘alar qo‘shilib

vaqtinchalik oqar suvlarni

o‘zanda doimiy oquvchi soylarni hosil qiladi

Soylar suvining qo‘shilishidan

daryo oqimi hosil bo‘ladi



Daryo oqimiga → yer osti suvlari ham kelib qo‘shiladi

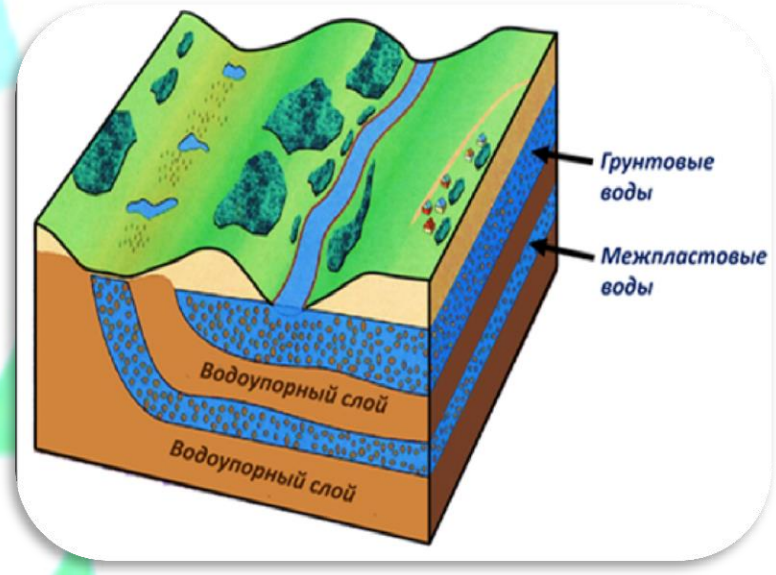
Daryo oqimi → yer yuzasi

+

yer osti suvlarining

=

yig‘indisidan iborat bo‘ladi.



Daryo oqimining hosil bo‘lishiga

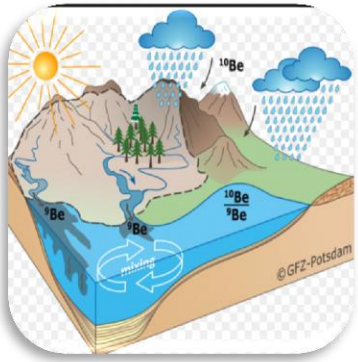
havzaning geografik o‘rni

geologik tuzilishi va relyefi

Iqlimi

gidrografik sharoiti (muzlik, ko‘l, botqoqlik)

tuproq va o‘simlik qoplami



kabi tabiiy geografik omillar ta’sir etadi.

Oqim hosil bo‘lish jarayoniga

insonning daryo havzasidagi xo‘jalik faoliyati ham jiddiy ta’sir ko‘rsatadi

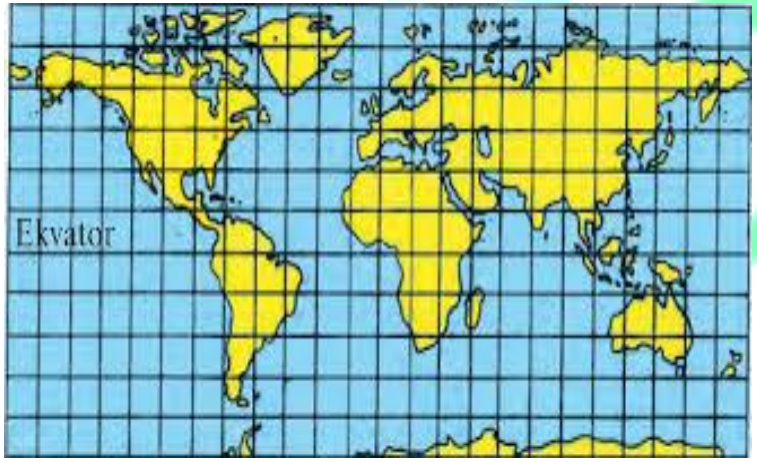
Влияние хозяйственной деятельности на режим рек можно разделить на две группы:

- с прямым воздействием на сток;
- с косвенным воздействием на сток.

Daryo havzasining geografik o‘rni

daryo havzasi joylashgan hududning eng chekka janubiy va shimoliy nuqtalari

eng chekka g‘arbiy va sharqiy nuqtalari nazarda tutiladi



Shu ma’lumotlarga ega bo‘lsak

daryo havzasining qaysi materikda

qaysi kenglikda

qaysi mamlakat hududida joylashganligi

haqida dastlabki tasavvurga ega bo‘lamiz

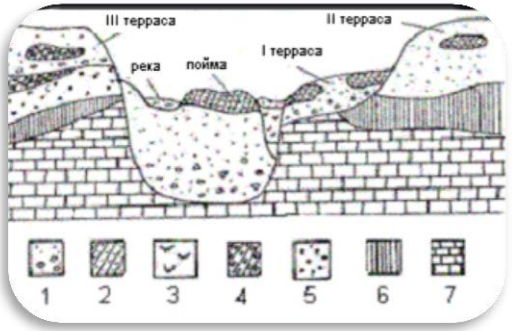
Er usti va osti suvlarining to‘planish va sarflanish sharoiti

Рис. 35. Подпор грунтовых вод в речной долине:
1 — уровень реки в межень; 2 — то же, в период паводка; 3 — уровень грунтовых вод; h — повышение уровня грунтовых вод

- havzaning geologik tuzilishi
- jinslarining litologik tarkibi
- suv o‘tkazmas qatlamlarning joylashish chuqurligi

- oqim hosil bo‘lishiga
- miqdoriga
- yil ichida taqsimlanishiga

ta’sir etadigan jiddiy omillardan hisoblanadi



Relyefning oqimga bevosita ta’siri

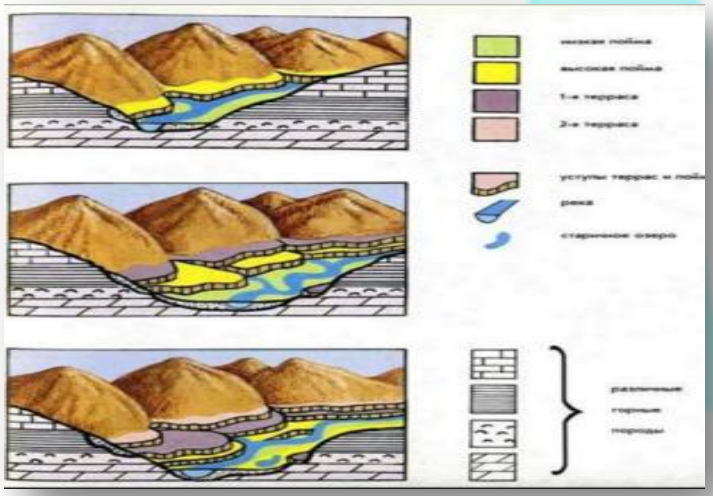
havzaning nishabligi orqali ifodalanadi

havzaning nishabligi katta bo‘lsa

oqim jadal sur’atda hosil bo‘lib

daryo o‘zaniga oqib kelish vaqti qisqaradi

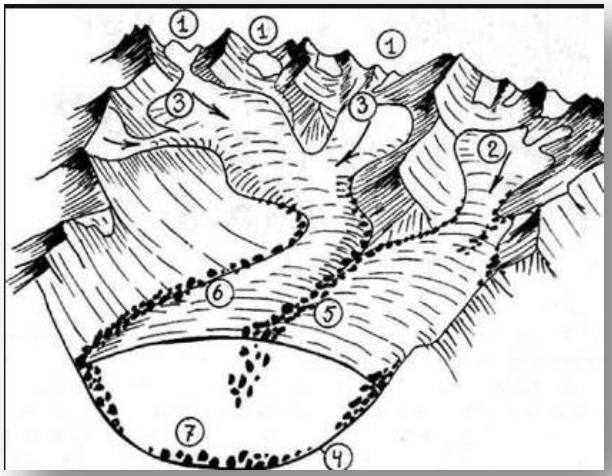
yer ostiga shimilish va bug‘lanishga kam miqdorda suv sarf bo‘ladi.



Havza relyefining oqim hosil bo‘lishiga bilvosita ta’siri

daryo havzasi suv balansining asosiy elementlari bo‘lgan

yog‘insochin, bug‘lanish, yer ostiga shimilish va havzada to‘planadigan suv miqdori orqali seziladi.



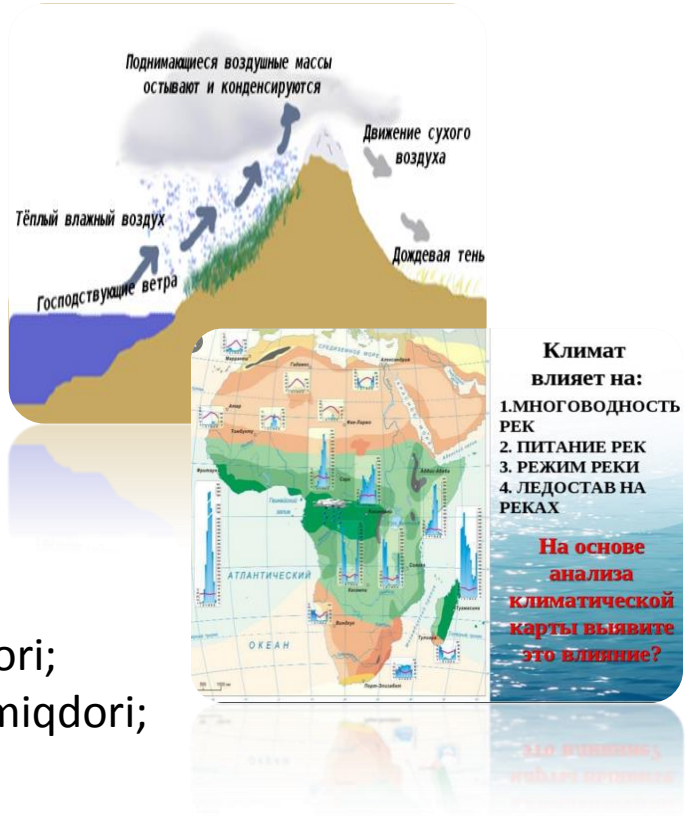
Iqlimiy omillar deganda

- atmosfera yog‘inlari
- bug‘lanish
- havo harorati
- havo namligi
- shamol

Shu omillardan qaysi birining oqimga hal etuvchi va bevosita ta’sir etishini bilish uchun

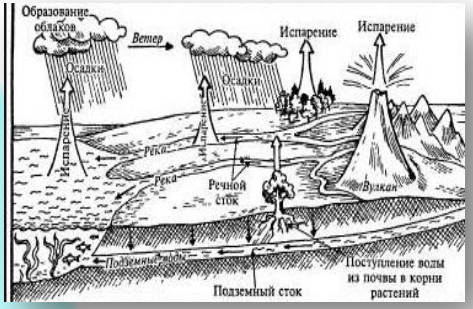
$X_0 = U_0 + Z_0$

$U_0 = X_0 - Z_0$



X_0- havzaga yog‘adigan o‘rtacha ko‘p yillik yog‘in miqdori;
Z_0-havzadan bo‘ladigan o‘rtacha ko‘p yillik bug‘lanish miqdori;
U_0 - daryo oqimining o‘rtacha ko‘p yillik miqdori.

Iqlimning daryo oqimiga ta’sir etuvchi asosiy elementlari



atmosfera yog‘inlari

bug‘lanishdir

Bir xil tabiiy sharoitda daryo havzasiga qancha ko‘p yog‘in yog‘sa

oqim shuncha ko‘p miqdorda hosil bo‘ladi

Ular orasidagi bog‘liqlikni analitik ko‘rinishdagi ifodasi

$U_0 = f(X_{0)}$

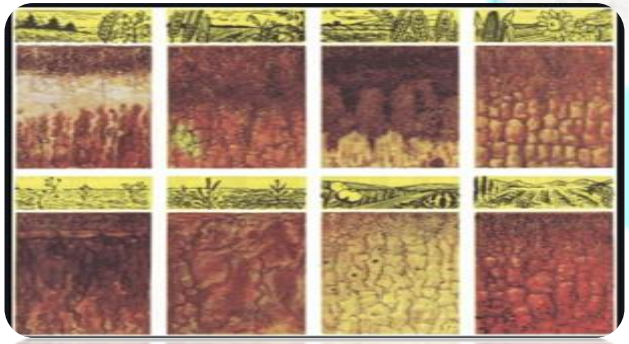
Tuproq qoplamining oqim hosil bo‘lishiga ta’siri

suv shimish va shimilgan suvni o‘zida ushlab tura olish imkoniyati bilan xarakterlanadi.

Tuproq zarrachalarining o‘lchamlari qancha katta bo‘lsa

shuncha ko‘p miqdordagi suvni shimadi

Masalan



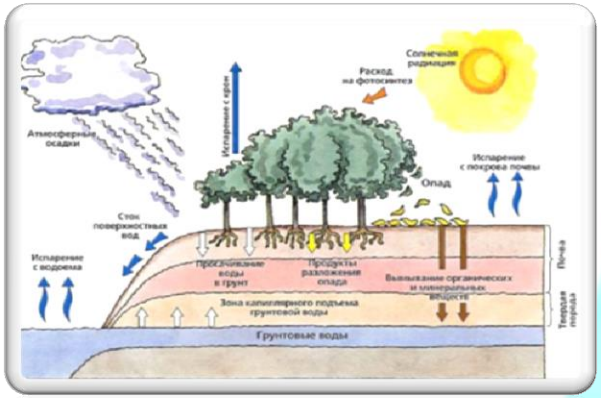
qumli tuproq loy tuproqqa nisbatan 5-10 marta ko‘p suvni shima oladi.

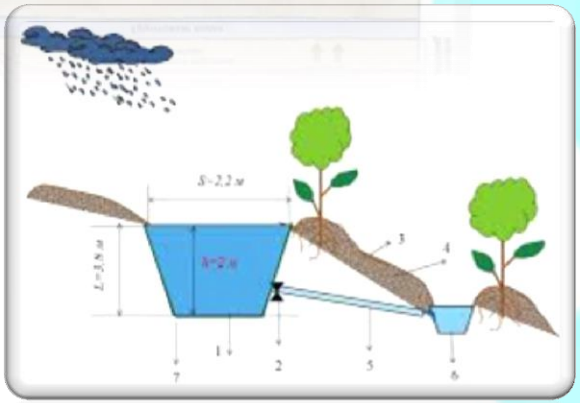
Daryo havzasidagi o‘simlik qoplamining oqim hosil bo‘lishiga ta’siri

o‘simlik qoplami

atmosfera yog‘inlarining bir qismini o‘zida ushlab

ildizlari yordamida doimiy ravishda tuproqdan ma’lum miqdordagi namlikni olib yog‘inning yanada ko‘proq qismining bug‘lanishiga imkon beradi;



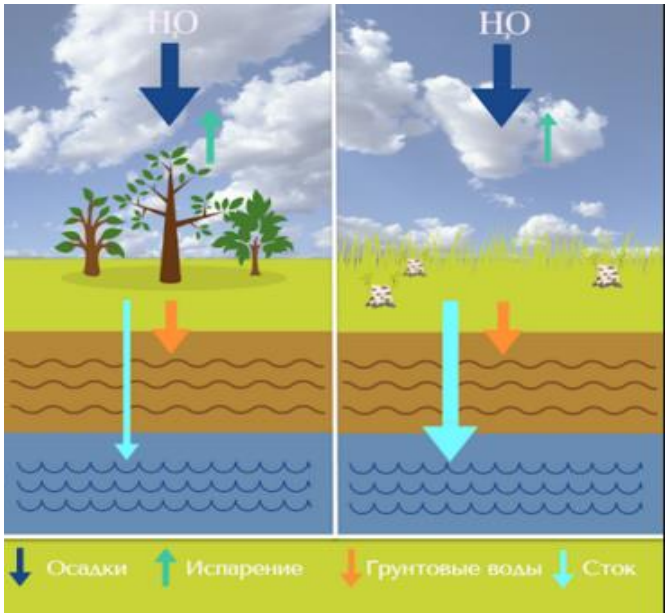


o‘simlik qoplami

o‘z tanasi bilan tuproq yuzasini to‘sadi, uning isib ketishiga yo‘l qo‘ymaydi va natijada, bug‘lanish miqdorini kamaytiradi

yer yuzasi g‘adir-budurligini orttiradi, bu esa yuzada suvning oqish tezligini kamaytirib, ko‘p miqdordagi suvning yer ostiga shimilishiga imkon beradi

o‘rmonlar, yer sirtidagi qorning erishini sekinlashtiradi va bu bilan yer ostiga shimilishni kuchaytiradi .



Ko‘llar, botqoqliklar va muzliklarning ta’siri

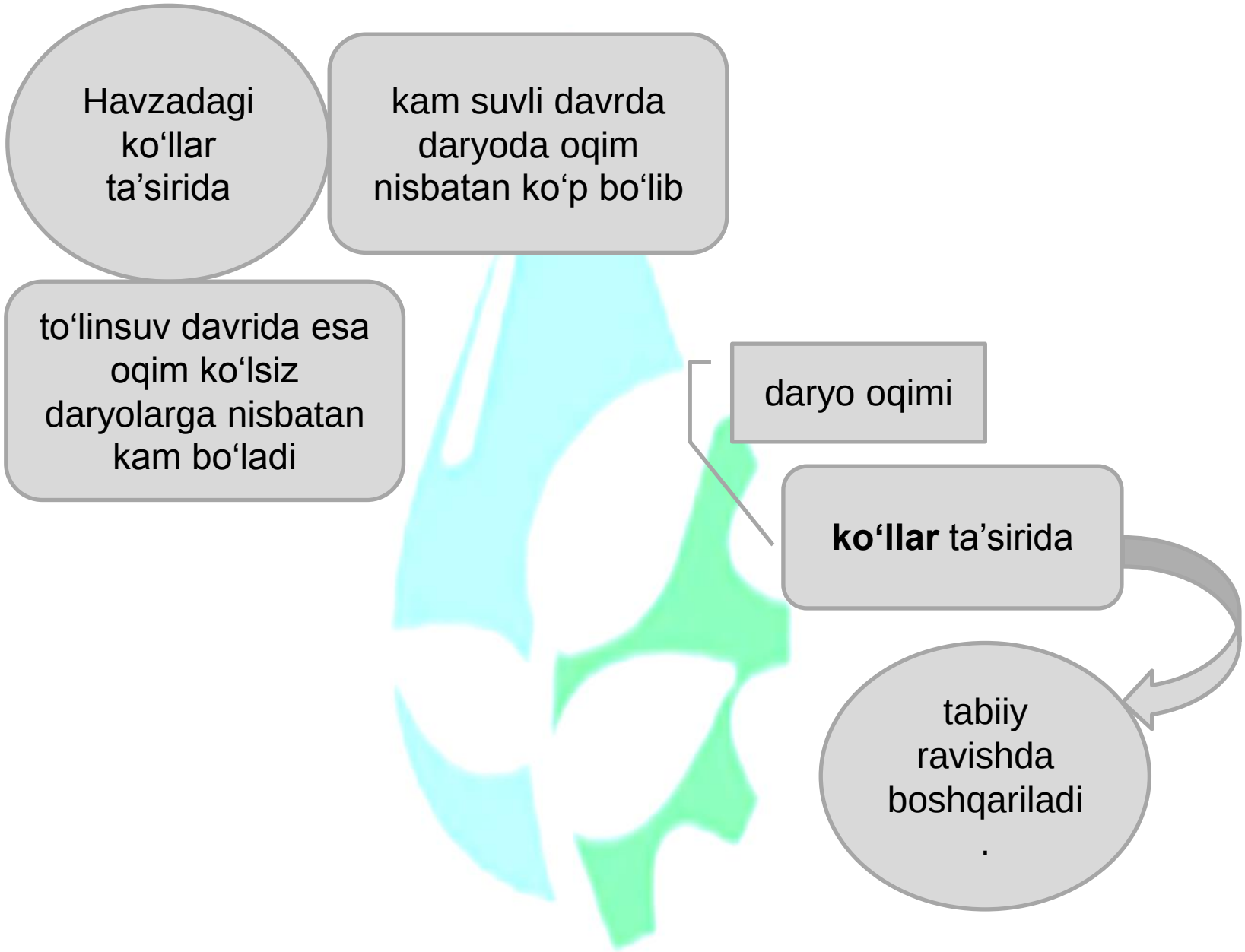
Daryo havzasida mavjud bo‘lgan ko‘llar, botqoqliklar

ma’lum darajada oqimni boshqarib

uning yil ichida nisbatan tekis taqsimlanishiga sabab bo‘ladi.

Botqoqliklar haqida ham yuqoridagi kabi fikrlarni bildirish mumkin

Ularning daryo oqimiga ta’siri shimoliy hududlarda sezilarlidir.


Havzadagi ko‘llar ta’sirida
kam suvli davrda daryoda oqim nisbatan ko‘p bo‘lib
to‘linsuv davrida esa oqim ko‘lsiz daryolarga nisbatan kam bo‘ladi
daryo oqimi
ko‘llar ta’sirida
tabiiy ravishda boshqariladi .

Daryo havzasida **muzliklarning** mavjudligi

oqimning yil davomida

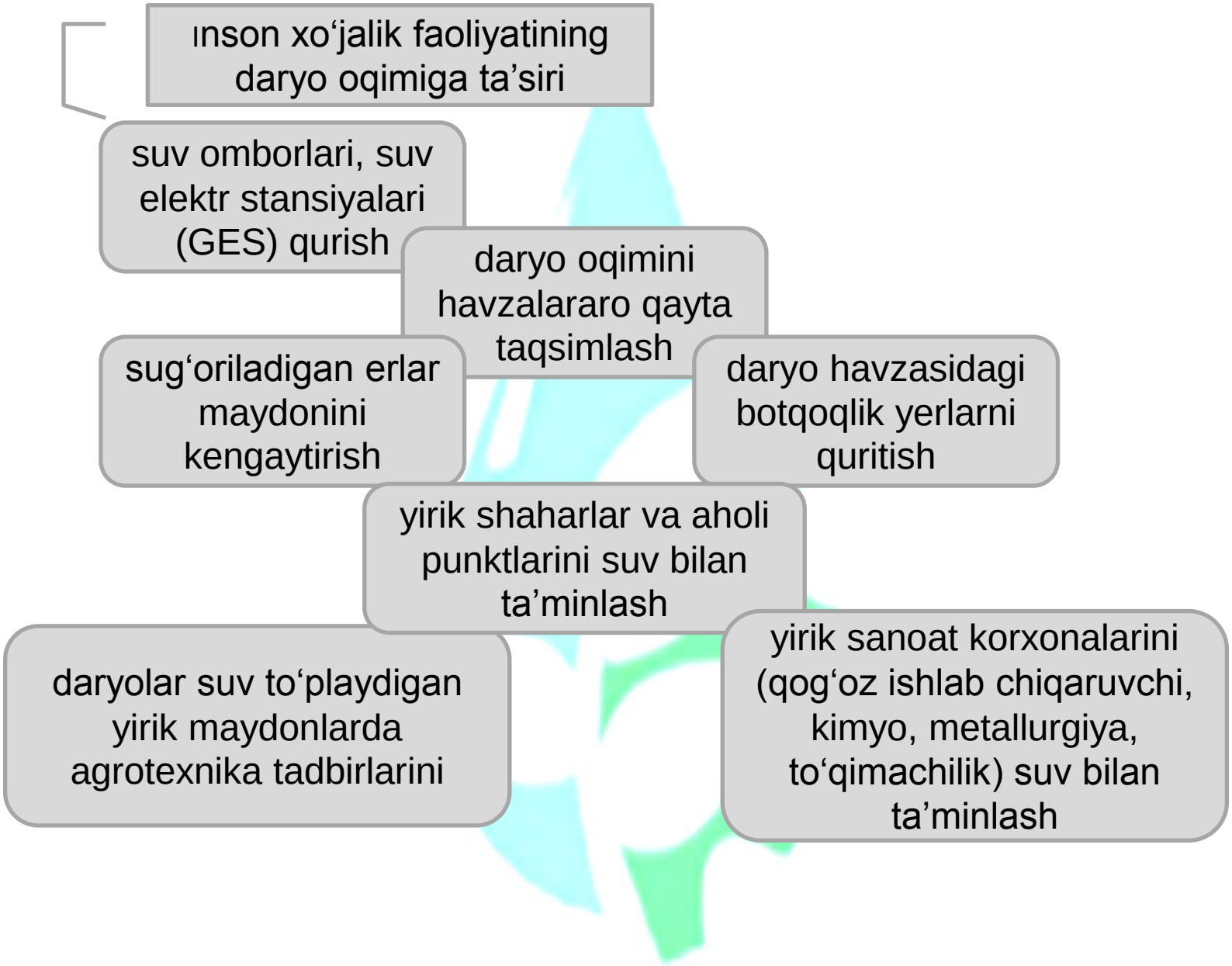
yillararo taqsimlanishiga

ta’sir qiladi

Masalan

O‘rta Osiyo tog‘laridagi muzliklar hisobiga to‘yinadigan daryolar (Zarafshon, Norin, Vaxsh) oqimining asosiy qismi iyul-sentyabr oylariga to‘g‘ri keladi.

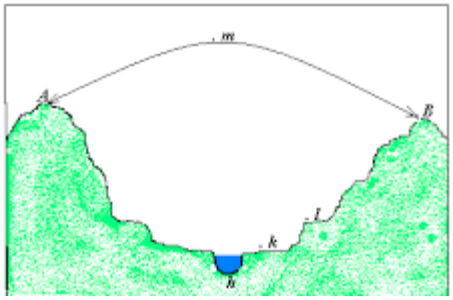
Shu davrdagi issiqlik balansi esa u yildan bu yilga kam o‘zgaradi, binobarin oqim miqdori ham yildan-yilga kam o‘zgaradi.

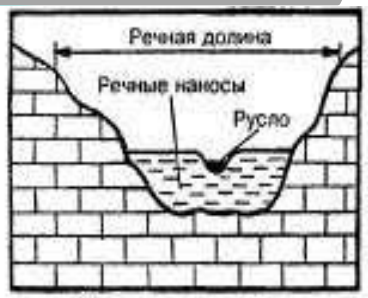

ınson xo‘jalik faoliyatining daryo oqimiga ta’siri
suv omborlari, suv elektr stansiyalari (GES) qurish
daryo oqimini havzalararo qayta taqsimlash
sug‘oriladigan erlar maydonini kengaytirish
daryo havzasidagi botqoqlik yerlarni quritish
yirik shaharlar va aholi punktlarini suv bilan ta’minlash
daryolar suv to‘playdigan yirik maydonlarda agrotexnika tadbirlarini
yirik sanoat korxonalarini (qog‘oz ishlab chiqaruvchi, kimyo, metallurgiya, to‘qimachilik) suv bilan ta’minlash

Daryo vodiysi

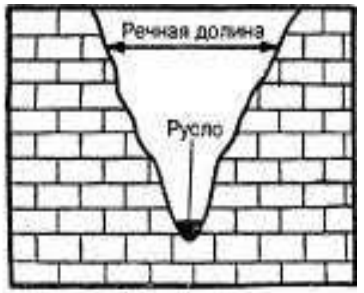
suv oqimining yer sirtida bajargan ishi natijasida vujudga kelib

daryoning boshlanishidan quyi qismi tomon ketgan yassi yonbag‘irlari va nishabligi bilan xarakterlanadi.





Равнинная река

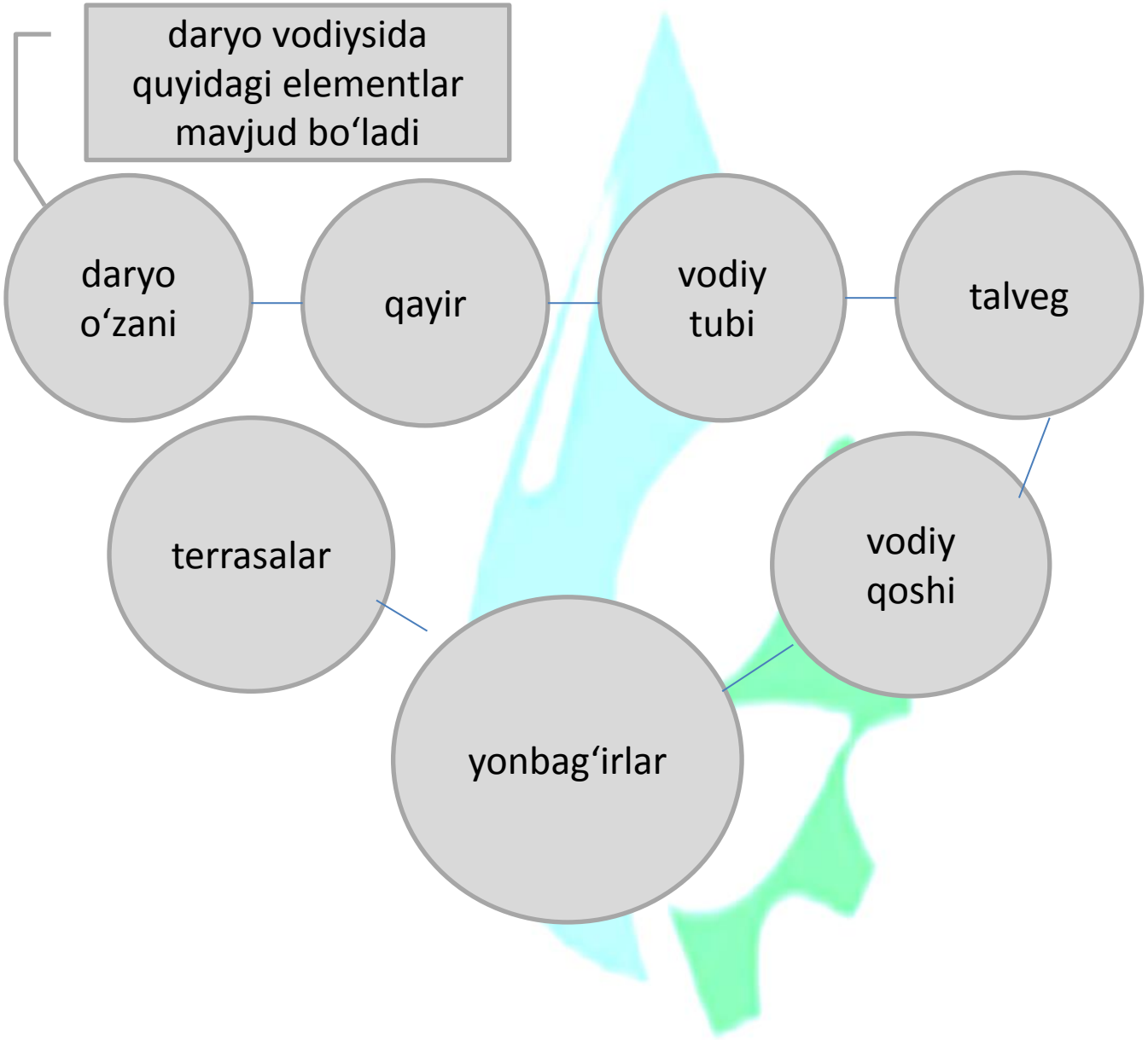


Горная река

Поперечный профиль долины рек

Ma’lumki, ikki daryo vodiysi o‘zaro kesishmaydi

lekin ular birgalikda umumiy vodiyni tashkil qilishi mumkin.

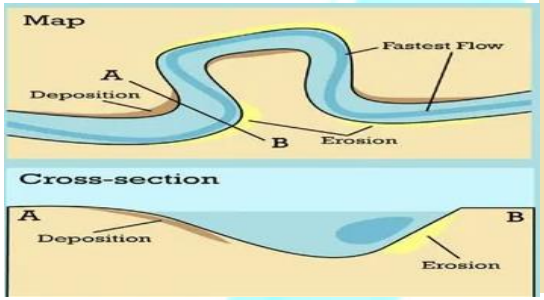

daryo vodiysida quyidagi elementlar mavjud bo‘ladi
daryo o‘zani
qayir
vodiy tubi
talveg
terrasalar
vodiy qoshi
yonbag‘irlar

daryo o‘zani

vodiyning oqar suv egallagan qismi

Русло – углубление в рельефе, по которому течет поток воды.

Daryo o‘zanining shakli



vodiyning geologik tuzilishi

tashkil etgan tog‘ jinslarining turi

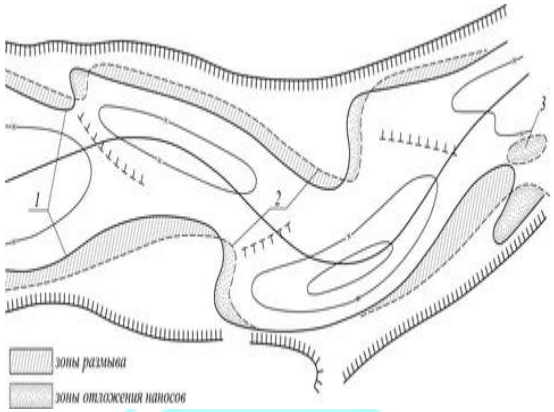
daryoning suvlilik darajasi

boshqa bir qator omillarga bog‘liq holda

daryo uzunligi bo‘yicha o‘zgaruvchan bo‘ladi

Daryo o‘zanining shakli

planda izobatlar bilan ifodalanadi.



o‘zanning ko‘ndalang qirqimi

Daryoning oqim yo‘nalishiga perpendikulyar qirqim

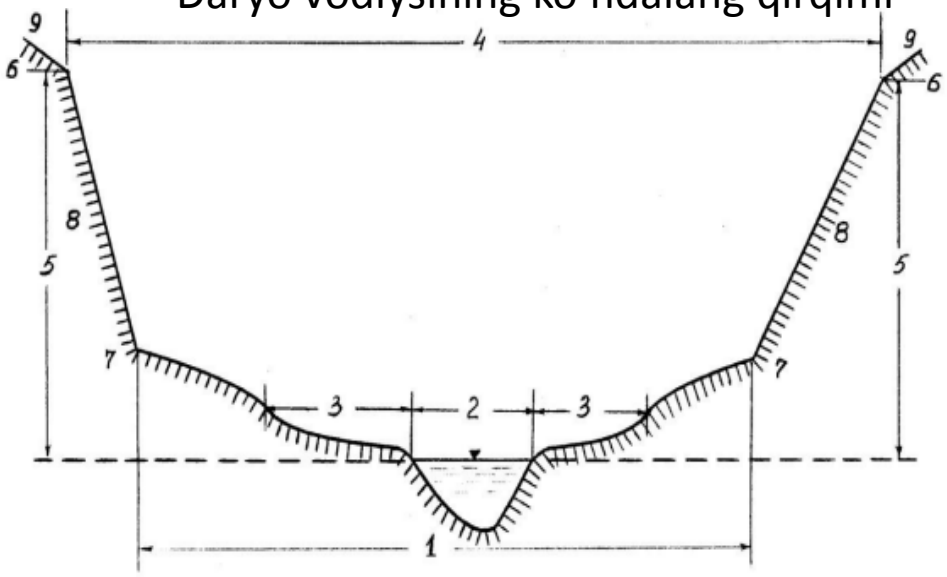
jonli kesma maydoni

Ko‘ndalang qirqimning suv oqayotgan qismi

harakatsiz o‘lik maydon

ko‘ndalang qirqimda suv oqmaydigan joylar

Daryo vodiysining ko‘ndalang qirqimi



1 - vodiy tubi, 2 - daryo o‘zani, 3 - qayir, 4 - vodiy kengligi, 5 - vodiy poyi, 6 - vodiy qoshi, 7 - yonbag‘ir poyi, 8 - vodiy yonbag‘irlari, 9 - vodiyga tutash yerlar

Ko‘ndalang qirqim yuzasi (W)

$$W = \frac{(в_1 * h_1)}{2} + \frac{(h_1 + h_2)}{2} * в_2 + \ldots + \frac{(в_6 + h_5)}{2},$$

ifodada: $h_1, h_2, \ldots h_5$ - o‘lchangan chuqurliklar; $в_1, в_2, \ldots в_6$ - chuqurlik o‘lchangan nuqtalar orasidagi masofalar (kengliklar).

Ko‘ndalang qirqimning namlangan perimetri (P)

o‘zan tubi chizig‘ining uzunligidan iboratdir

Ko‘ndalang qirqimning gidravlik radiusi (R)

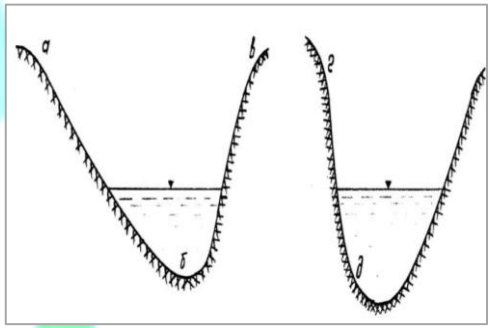
$$R = \frac{W}{P} .$$

Ko‘ndalang qirqimning suv yuzasi bo‘yicha kengligi

daryoning kengligi (B)

bevosita o‘lchab aniqlanadi

Daryo qirg‘og‘ining turlari



ab - yotiq qirg‘oq,

bv - nisbatan tik qirg‘oq

gd - jarsimon qirg‘oq

Eng katta chuqurlik (h_{max})

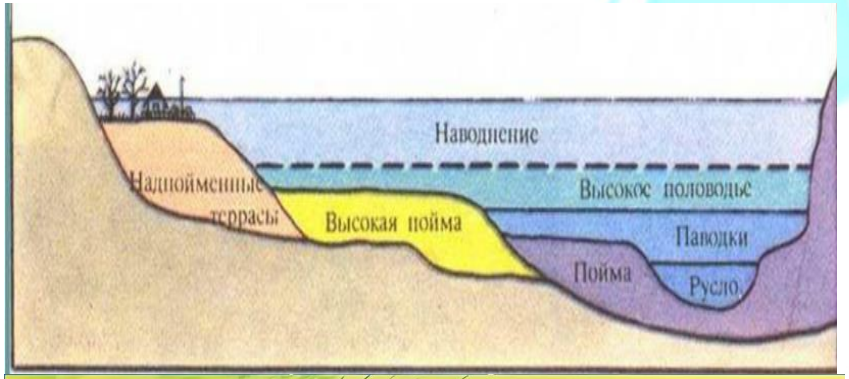
o‘lchash natijalari tahliliga asosan aniqlanadi

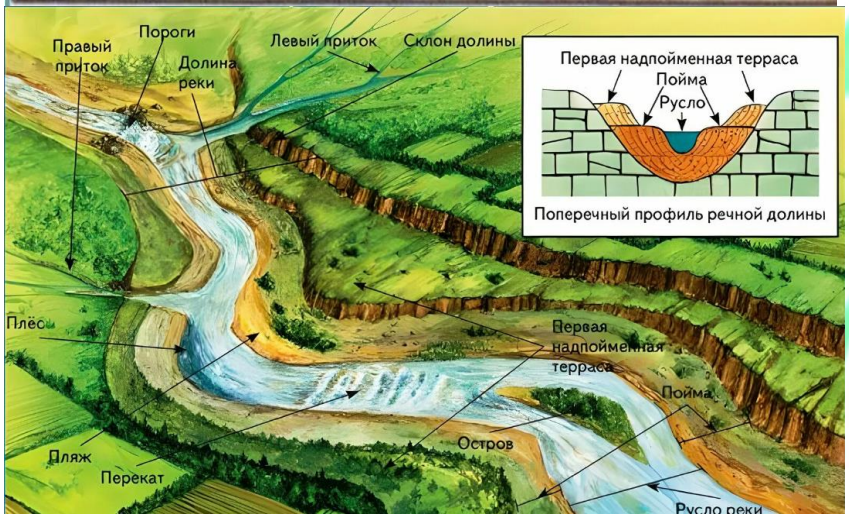
Ko‘ndalang qirqimning o‘rtacha chuqurligi (ho'rt)

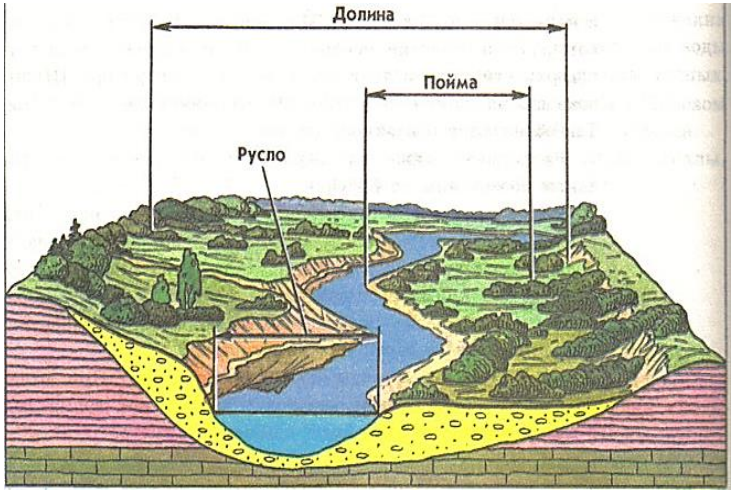
$$h_{o'rt} = \frac{W}{B}$$

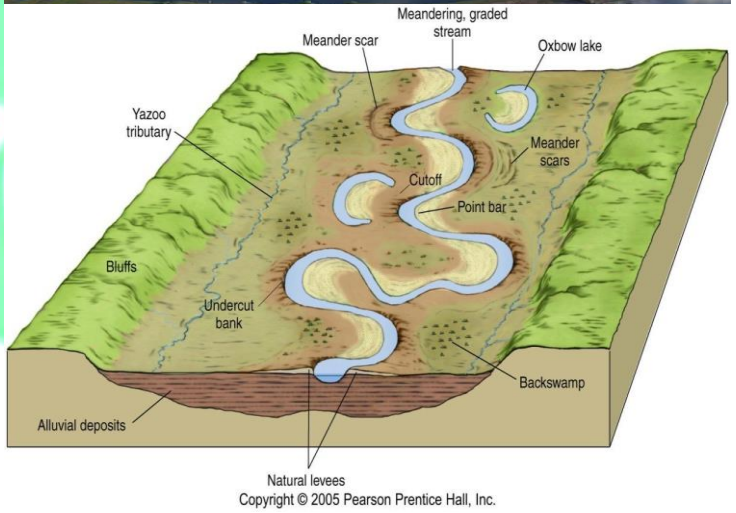
qayir

daryoda toshqin yoki to‘linsuv kuzatilganda vodiyning suv bosadigan qismi



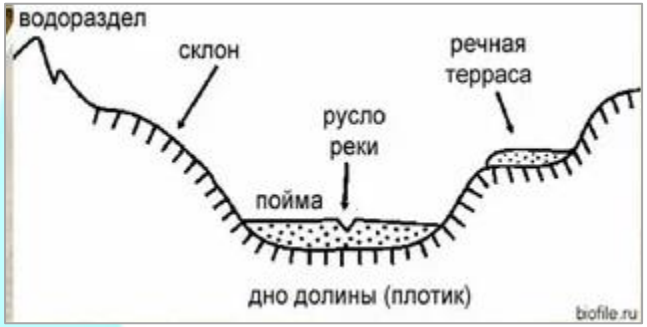






vodiy tubi

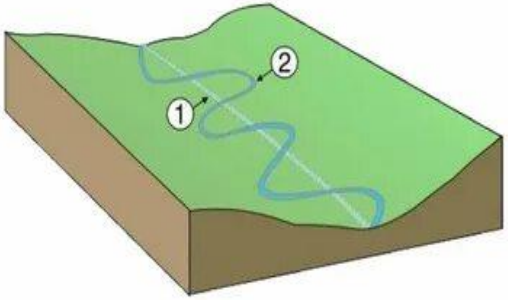
daryo o‘zani va qayir birgalikda vodiy tubi deb ataladi

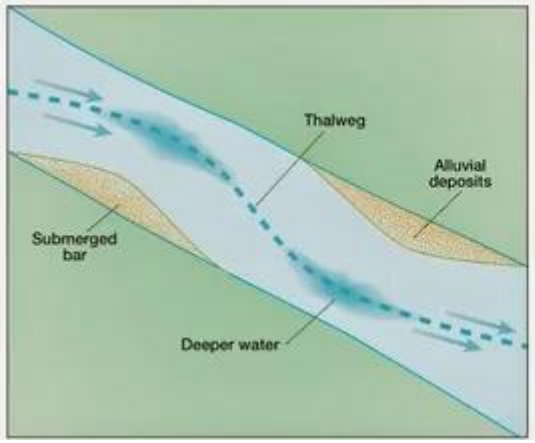


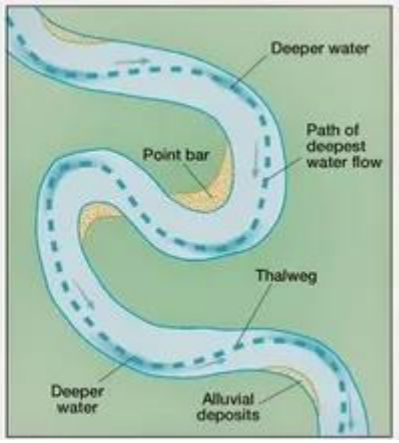
talveg

daryo uzunligi bo‘yicha o‘zandagi eng chuqur nuqtalarni tutashtiradigan egri chiziq

Схематическое изображение образования меандрирования реки в долине (1 — тальвег, 2 — излучины)

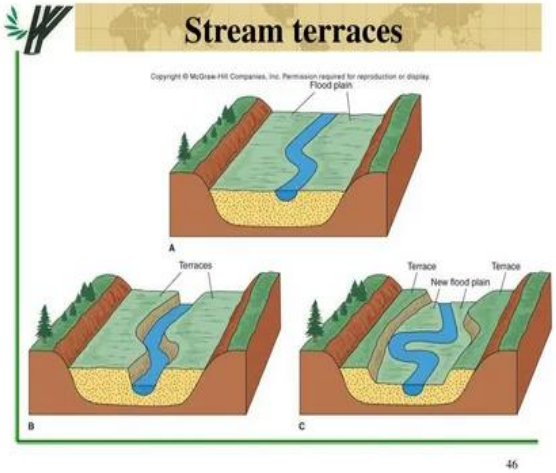


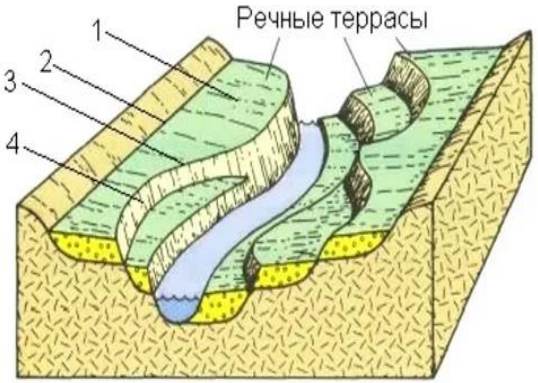


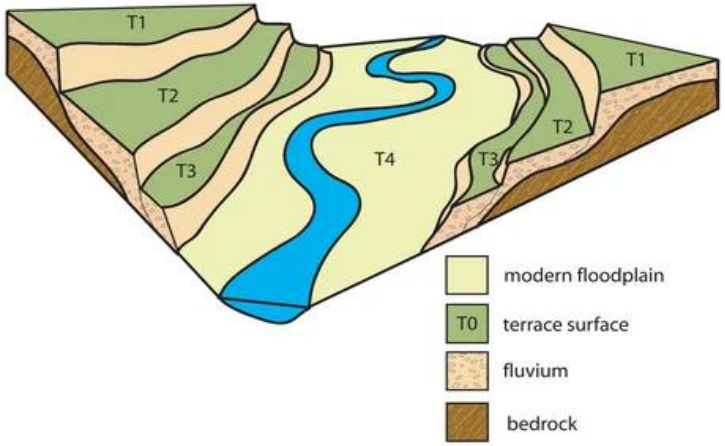


terrasalar

yonbag‘irlardagi gorizontal yoki biroz qiyalikka ega bo‘lgan maydonchalar

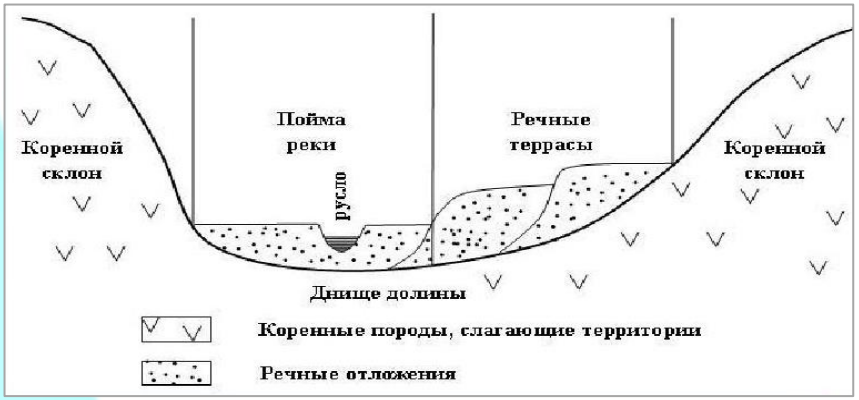


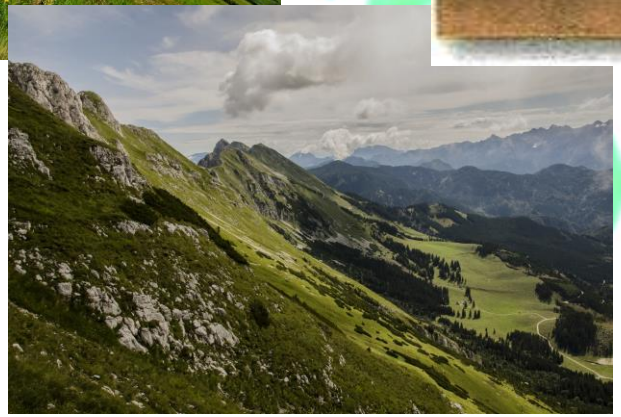




yonbag‘irlar

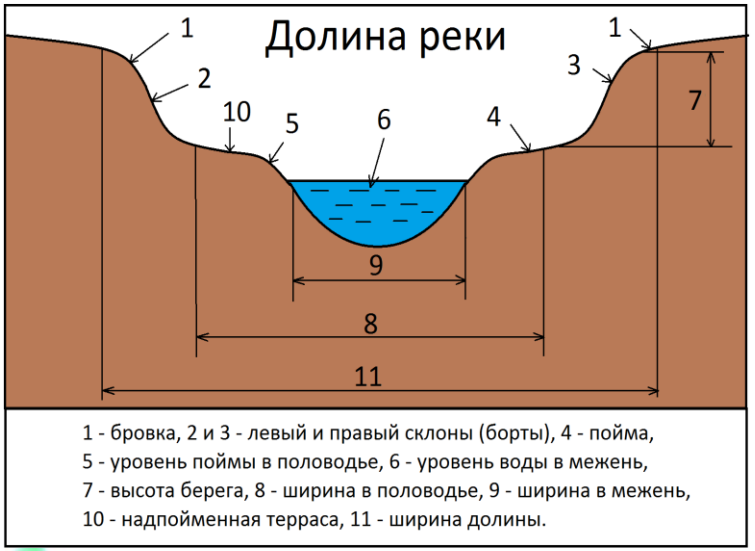
vodiy tubini ikki yondan chegaralab turuvchi va daryoga qarab qiya joylashgan maydonlar



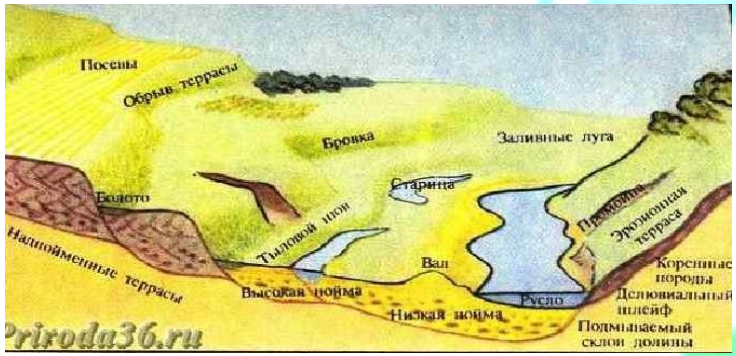


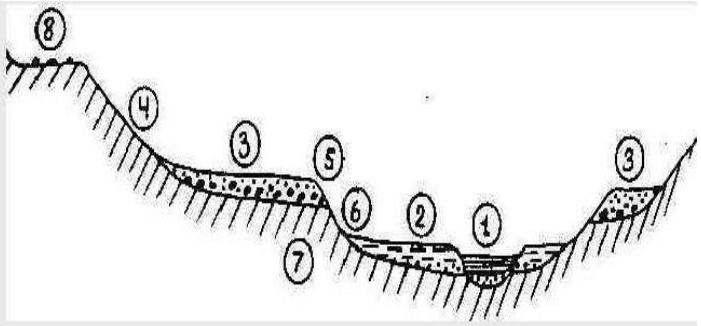
vodiy qoshi

vodiy uzunligi bo‘yicha yonbag‘irlarning eng yuqori nuqtalarini tutashtiruvchi chiziq

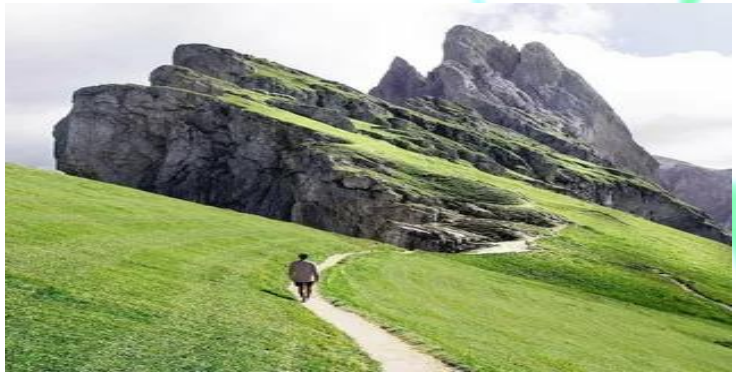


1 - бровка, 2 и 3 - левый и правый склоны (борты), 4 - пойма,
5 - уровень поймы в половодье, 6 - уровень воды в межень,
7 - высота берега, 8 - ширина в половодье, 9 - ширина в межень,
10 - надпойменная терраса, 11 - ширина долины.





1 – река, 2 – пойма, 3 – I надпойменная цокольная терраса, 4 – тыловой шов террасы, 5 – бровка террасы, 6 – уступ террасы; 7 - коренные породы, 8 - эрозионная терраса



Daryo vodiysining

tuzilishi

shakli

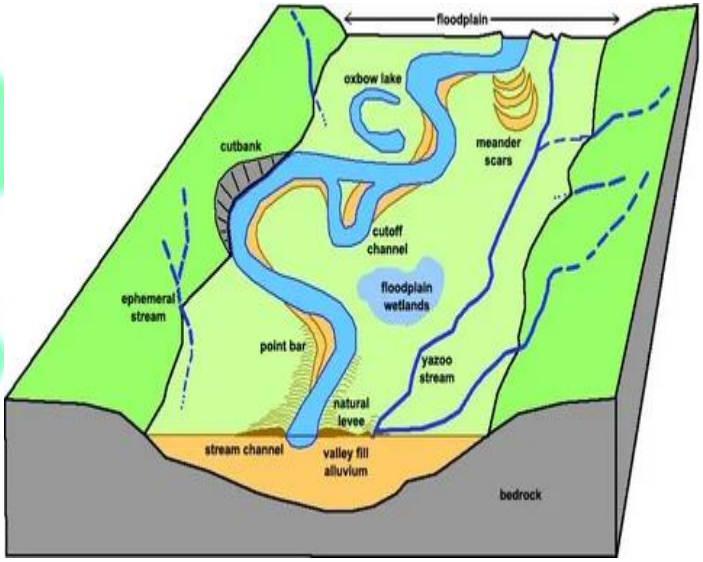
o‘lchamlari

daryoning suv rejimiga katta ta’sir ko‘rsatadi

Masalan

yonbag‘irlar qiyaligining katta yoki kichikligi daryoning loyqaligiga ta’sir qilsa

o‘zanning egribugriligi unda oqayotgan suvning tezligiga ta’sir ko‘rsatadi.



Adabiyotlar:

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E'TIBORINGIZ UCHUN RAHMAT!

NAZARALIYEV DILSHOD VALIDJANOVICH

Gidrologiya va gidrogeologiya kafedrasi dotsenti

☎ + 998 71 237 0971

✉ dnazaraliyev@yandex.com

NAZARALIYEV DILSHOD