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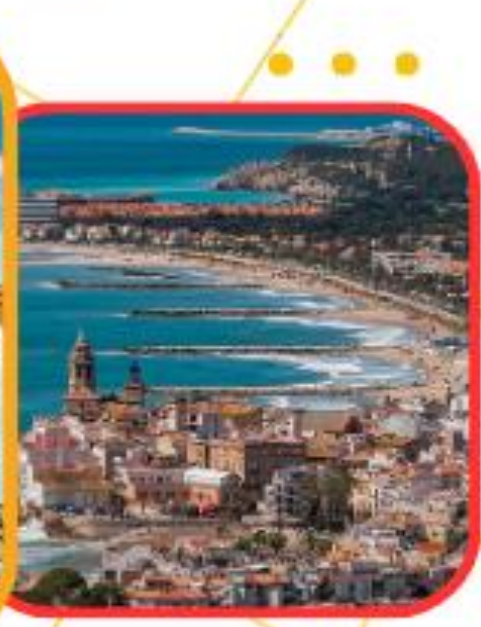

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THE IMPACT OF HUMAN ACTIVITY ON ADIR ECOSYSTEMS AND PRIORITIES FOR THEIR SUSTAINABLE MANAGEMENT (ON THE EXAMPLE OF ANDIJAN REGION)

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Abstract. This in the thesis Andijan province hill regions in the example of human of activity to ecosystems impact complex analysis Research during anthropogenic of factors soil, plant cover , water resources and biodiversity impact scientific sources, field observations and statistic information based on evaluated. Research to the results see, hill in the regions ecological of balance to the violation from the lands wrong use, livestock of the load increase, plant of the cover contraction and water resources in management disadvantages main reason what is happening this was determined. factors to reduce aimed at stable management priority directions offer was done.

Key words: hill ecosystem, anthropogenic impact, degradation, ecological management, biological diversity, erosion , ecological monitoring.

Hill regions Uzbekistan natural-landscape in the system important ecological and economic importance has are, they are village agriculture, livestock and natural pastures as wide is used. However population number increase, village farm working release expansion and natural from resources intensive use as a result this in the regions anthropogenic pressure year after year increasing is going on.

… Today on the day anthropogenic factors under the influence hill in the regions soil erosion , biodiversity shrinkage, water resources shortage and natural landscapes degradation is being observed. This processes not only ecological balance is breaking, maybe of the area economic potential and ecosystem services will also decrease reason this is happening. from the perspective of anthropogenic of factors hill ecosystems the impact complex assessment and them to reduce aimed at management mechanisms working exit current scientific task is [1].

This of the research purpose, Andijan province hill in the regions human of activity to ecosystems the impact assessment and them stable management priority directions scientific from justification consists of.

Hill regions natural to the conditions according to, ecological in terms of sensitive landscapes is considered. Slope relief, rainfall uneven distribution and water resources limitedness because of anthropogenic loading increase this in the regions negative ecological processes accelerates.

Hill in the regions on the slopes agrotechnician to the requirements compliance not done without farming take to go soil erosion strengthens. Expulsion of the layer washing as a result humus amount decreases, the soil physicist properties gets worse and wet hold stay ability decreases. This situation of productivity to decrease and ecosystem natural recovery of opportunity to be limited take is coming.

From the pastures from the norm more than use, plant of the cover to become sparse reason "Soil" surface densification infiltration process slow down, rain waters flow increases[2]. As a result water erosion increases and of the soil fertile layer will disappear.

Natural bushes and ephemeral of plants decrease biodiversity to decrease reason will be. Plant cover the soil wind and water from erosion protection doer main natural from factors one is considered. Its contraction ecosystem stability from the trail releases.

Andijan province hill in the regions annual oil spill mainly 250-350 mm organization it will rain. waters collection and from them effective use systems enough at the level underdevelopment because of of water big part superficial stream as disappears. This and lazy of the regions working release potential limits.

Andijan province hill regions natural - climate conditions, relief and land from resources use to the characteristics according to anthropogenic to pressure relatively sensitive from ecosystems one The province is Andijan, Asaka, Bulaqbashi, Jalaquduk, Marhamat, Altinkulu, Qorgontepa, Shahrikhan and Khojaabad in the districts located hill of the regions general area 44034,6 hectares organization Of which 21550,4 hectares irrigated, 22484,2 hectares and unirrigated from the lands consists of.

In the area annual rain amount the average rainfall is 250-350 mm, main part autumn-winter and spring to the seasons right It is coming. It is raining. of the waters big part slopes along superficial stream as flowing departure as a result soil erosion increases and humidity reserve enough at the level this situation is not formed. lazy farming and natural pastures productivity to decrease take is coming.

In May 2025 held field observations during hill of the regions various 1×1 m in the expositions in the fields ephemeral plants number evaluated. Monitoring to the results because the sun good falling on the slopes ephemeral plants density 874–981 bush/m², relative shade on the slopes and, 610-782 bush/ m² organization these results anthropogenic pressure and microclimate conditions plant of the cover to the formation noticeable impact to show confirms (Table 1).

UN To the desert against struggle Convention on the Elimination of All Forms of Crude Oil (UNCCD) in the regions land degradation reduce and to degradation

encountered lands to restore ecological of stability important condition as confession [3]. Also, FAO has in the regions precipitation waters collection and from them reasonable use land resources fertility increase and water shortage reduction effective from the methods one that emphasizes. This approaches Andijan province hill regions also relevant for importance profession will reach.

Table 1

Andijan province hill of the regions main ecological description

Description element	Quantity
Hill of the regions general area	44,034.6 ha
Water- absorbing field	21,550.4 ha
Non-irrigated field	22,484.2 ha
Ephemeral plants (sunny slope)	874–981 bush/m^2
Ephemeral plants (shade slope)	610–782 bushes/m^2

Research results this showed that the hill ecosystems effective management only separately ecological events done increase with limited without fail, natural from resources reasonable use, modern monitoring systems current to grow and interested of the parties cooperation provider integrated requires an approach. This perspective from the point of view, Andijan province hill territories stable management following priority directions offer (Table 2).

First, the land resources protection to do and to erosion against events strengthen necessary. “This for on the slopes contoured farming, many annual plants planting, protection groves build to grow and to erosion against agrotechnician events wide application recommendation is being done”[4].

Secondly, it rains. waters collection and from them effective use systems develop important importance has . FAO recommendations suitable, dry, white in the regions rain waters collect and water saver irrigation technologies current to grow water from resources use efficiency increase important from factors This approach is one of Andijan province hill of the regions unwatered from the fields effective use opportunities expands.

Thirdly, from pastures scientific based use system current to grow necessary. Livestock download pastures natural to capacity adaptation, seasonal in exchange use and to degradation encountered fields reclamation to do plant of the cover to recovery service does.

Fourth, geographical information systems (GAT), remotely probing and field to observations based environmental monitoring system develop Such a monitoring system is necessary. anthropogenic pressure territorial change own on time detection, dangerous plots designation and management of decisions scientific based on increase opportunity gives.

Fifth, local population, farmer farms, scientific institutions and state organizations between cooperation strengthen stable management important condition is considered. Ecological education development, population ecological culture increase and public participation expansion natural from resources reasonable use to provide service does.

Above priority directions mutual related without done increase hill ecosystems ecological stability strengthening, natural from resources use efficiency increase and of the area ecological and socio-economic development to provide service does.

Table 2

Hill ecosystems stable management priority directions

Priority direction	Expected result
Earth resources protection to do	Soil erosion decrease and fertility increase
Rain waters collection and from them benefit	Water supply improvement , lazy lands efficiency increase
Pastures scientific management	Plant of the cover recovery and biodiversity preservation
GAT and remotely probing based on monitoring	Ecological of control improvement and fast management decisions
Ecological cooperation and population participation	Stable management efficiency increase

Conclusion. Research results Andijan province hill in the regions anthropogenic pressure increase soil erosion, vegetation of the cover shrinkage, water from resources ineffective use and biodiversity to decrease take coming showed. Ecosystem components between mutual dependency into account received without, anthropogenic the effect reduce of the area ecological stability of providing main condition that determined.

Research during hill ecosystems stable management priority directions as land resources protection to make, rain waters collection and from them effective use, pastures scientific basically management, geographical information systems (GIS) and remotely probing technologies based on ecological monitoring develop and state bodies, scientific institutions, farmer farms and local population between cooperation strengthen based on was given.

Offer done priority directions complex accordingly done increase hill in the regions natural from resources reasonable use, degradation processes reduce, ecosystem services storage and of the area ecological and socio-economic stable development to provide service does.

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