
METHODOLOGY FOR ASSESSING THE MULTI-CRITERION GEOPHYSICAL STATE OF LAND RESOURCES IN THE FERGANA REGION AND FORMING AN INTEGRAL INDEX

Alisherov Shokhrukhbek Mirzahidjon ugli

"UZDAVYERLOYIHA" State science design "FARVILYERLOYIHA"
department of the institute International relationship chief specialist of the
Department

Abstract

This in the thesis Fergana province land resources geospatial status complex assessment and the integral index of formation scientific and methodological basics covered. The research main purpose in the area land resources soil-reclamation, ecological, hydrological, geomorphological and anthropogenic features geographical information systems (GIS), remote probing and many criterion decision acceptance to do methods based on only assessment to the system from merging consists of. Research in the methodology indicators normalization to do, Analytical hierarchy process (AHP), entropy weight and weighty linear aggregation from the methods use offer This is approach land resources territorial differences detection, degradation danger high was fields designation and land from the fund reasonable use according to scientific based decisions working to go out service does.

Keywords: Fergana province, land resources, geospatial assessment, integral index, GIS, remote probing, AHP, soil degradation, salinization, land monitoring.

Login

Earth from resources reasonable use, soil fertility storage and ecological stability provide territorial development important from the conditions Especially the population density, village farm activity and irrigated of farming importance high was Fergana in the province of lands quality status regular study and territorial differences determination current scientific and practical task is considered. Earth resources status soil fertility, salinity, groundwater mode, vegetation cover, erosion danger and anthropogenic pressure such as many factors under the influence is formed. This indicators

separately assessment of lands general status about complete imagination does not give. Therefore, different natural and anthropogenic factors only geospatial in the system unifying many criterion assessment methodology working exit important importance profession Geographical information systems and remotely probing technologies land on the cover changes determination, soil and vegetation status mapping and land resources territorial features analysis to do opportunity This gives information many criterion analysis methods with integration through Fergana of the province land resources status complex descriptive integral index formation possible [1-4].

Research purpose and methodology

The research purpose Fergana province land resources many criterion geospatial status assessment and various indicators to a single integral index combine methodology working from the exit consists of.

In the study following indicators groups into account to take offer is being done :

- 1. Soil indicators :** soil bonity, humus amount of soil mechanic composition and organic carbon reserve.
- 2. Reclamation indicators :** soil salinity, groundwater depth and drainage systems status.
- 3. Ecological indicators :** NDVI vegetation index, earth of the cover change and plant of the cover many annual dynamics.
- 4. Geomorphological and hydrological indicators :** relief slope, erosion danger, water with provision and drought factors.
- 5. Anthropogenic indicators :** land use intensity, construction of the fields expansion and infrastructure pressure.

Sentinel-2 and Landsat artificial satellites were used in the study. satellite images, digital relief models, soil maps, cadastre information and there is field from observations use in sight is being held. Information only coordinate to the system brought in GIS environment again processed. Index values in a GIS environment spatial layer as formed, regional differences determination for thematic maps working will be released.



Expected results and discussion

Offer being done methodology based on Fergana province land resources complex status reflection leading integral geospatial the map formation opportunity This is created. map of lands relatively comfortable and inconvenient to the situation has parts determination, soil-reclamation problems collected fields designation and additional monitoring required to do regions to separate service to do possible [5-8].

Research as a result following scientific and practical to the results achieve in sight is caught :

1. Fergana province land resources descriptive many criterion indicators system to form.
2. From a distance probing and cadastre based on GIS data integration methodology working exit
3. Earth resources complex status the integral index representing calculation algorithm offer to be
4. Regional differences indicator thematic maps create for methodical basis working exit
5. Earth monitoring, reclamation events planning and land to compose in their work use possible was analytical information to form.

Index reliability provide for field observations, soil analyses and independent information based on validation transfer, also, weight coefficients change to the results how impact to do check necessary. NDVI value low or separately indicator negative indicator by itself degradation proof as interpretation not to be done need.

Conclusion

Fergana province land resources many criterion geospatial status assessment of the area natural, ecological and anthropogenic features only scientific and methodological in the system study opportunity GIS, remote probing and many criterion decision acceptance to do methods integration land resources spatial differences determine the integral index formation and monitoring improvement for effective methodological basis creates. AHP and entropic weight methods harmonization indicators expert importance and statistic difference into account to take help gives. With this together, integral index

reliability information quality, indicators selection, normalization method, weight coefficients and field validation directly depends.

This approach Fergana province in the example of practical implementation to grow land resources management, land reclamation monitoring the situation and territorial planning scientific justification for promising direction is considered.

References

1. Yokubov S. DEVELOPMENT OF AGRICULTURAL CARDS USING ARCGIS AND PANORAMA TECHNOLOGIES //Innovations in Science and Technologies. – 2024. – T. 1. – №. 1. – C. 101-107.
2. Khakimova K., Yokubov S. CREATION AND MAINTENANCE OF STATE CADASTERS IN THEREPUBLIC OF UZBEKISTAN //Innovations in Science and Technologies. – 2024. – T. 1. – №. 1. – C. 85-93.
3. Yokubov S. SCIENTIFIC AND THEORETICAL FOUNDATIONS FOR THEDEVELOPMENT OF MAPS OF THE LEGAL STATUS OF STATE LANDCADASTERS IN THE TERRITORY USING GIS TECHNOLOGIES //Innovations in Science and Technologies. – 2024. – T. 1. – №. 1. – C. 80-84.
4. Eshnazarov D. et al. Describing the administrative border of Koshtepa district on an electronic digital map and creating a web map //E3S Web of Conferences. – EDP Sciences, 2023. – T. 452. – C. 03009.
5. Khakimova K. et al. Application of GIS technologies for improving the content of the tourist map of Fergana province, Uzbekistan //E3S web of Conferences. – EDP Sciences, 2023. – T. 386. – C. 04003.
6. Yusufovich G. Y. Shavkat o ‘g ‘li SY CARTOGRAPHIC RESOURCES USED IN THE CREATION OF ELECTRONIC AGRICULTURAL MAPS OF FERGANA REGION //Finland International Scientific Journal of Education, Social Science & Humanities. – 2023. – T. 11. – №. 3. – C. 1001-1009.
7. Abduvakhabovich A. A. Shavkat o ‘g ‘li, SY Improving the Method of Mapping Agriculture Using Remote Sensing Data //Finl. Int. Sci. J. Educ. Soc. Sci. Humanit. – 2023. – T. 11. – C. 1093-1100.
8. Abduvakhabovich A. A. Shavkat o ‘g ‘li, SY Improving the Method of Mapping Agriculture Using Remote Sensing Data //Finl. Int. Sci. J. Educ. Soc. Sci. Humanit. – 2023. – T. 11. – C. 1093-1100.