

Land use planning using Geographical Information System (GIS) techniques

(Case study: Kalaleh & Darana watershed, North of Iran)

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ABSTRACT

Having information about natural conditions, resources, limitations and problems of watersheds, planning based on problems severity, potentials and priorities to decrease economic and human losses, increase in efficiency of resources based on capabilities and finally defining the best alternatives according to health and sustainability of ecosystems in a watershed are main objectives of land use planning. Resources allocation process is vital task especially for resources with limitations. One of these resources all over the world is land to use for different purposes. Since land use planning process use combination of different spatial information sources, applying effective tools with analysis capability is necessary. One of these tools is Geographic Information System (GIS), which is used widely in land use planning in national and global scales. In this study, land use planning has been developed in north-western part of Iran using conditional functions in GIS in order to decrease erosion and for optimum use of resources. In the designed model, several information layers such as slope, aspect, DEM, soil texture, drainage, soil hydrologic groups, rainfall, infiltration, plant cover and erodibility were considered. The results showed that 12% of total area is suitable for forest, 25.7% suits for agricultural-rangeland land uses. The results also indicate that 18% of area under agriculture use is not suitable for this type of land use.

Keywords: Land use planning, GIS, Modeling, Natural resource, Watershed, Iran