

**River surface water quality of the River Garaso: A land use** 

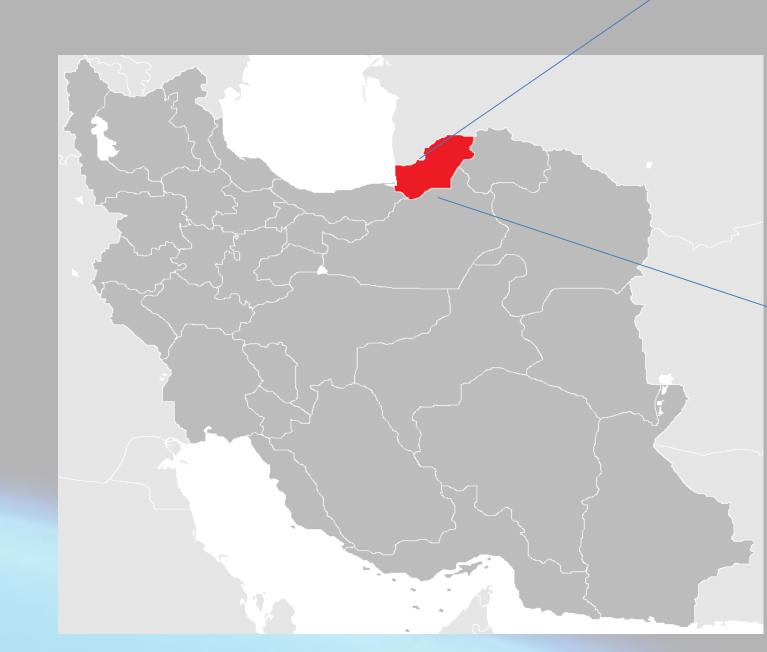


## changed in the upper Ziarat Basin, Golestan province, Iran

Yones Khaledian\*, Sohaila Ebrahimi, Nabee Basatnia, and Mozaffar Ghaderi Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran Yones.Khaledian@gmail.com

## **ABSTRACT**

The water quality of the River Ghara so are described in terms of point and diffuse sources of pollution, for this rural area of the upper Ziarat Basin that have had extensive villa building. So, the aim of this research was to investigate the role of urbanization and land use change on water quality in seven stations consisting of Siahab, Angirabad, Shastkalateh, Yasaqi, Naharkhoran, Abgir and Poleordogah. In this paper, principal



R	otated Comp	oonent Matri	x
		Component	
	1	2	3
TDS	.935	.328	.075
EC	.935	.335	.072
рН	.049	.262	627
Hco	.230	.836	.032
CI	.919	.267	.052
So	.925	.037	.093

Component Matrix					
	Component				
	1	2	3		
TDS	.976	186	011		
EC	.979	184	005		
рΗ	.047	251	.632		
Hco	.592	.434	.462		
CI	.930	232	029		
So	.836	353	206		

component analysis and hierarchical cluster analysis methods have been used in order to investigate the water quality of the Gharaso River and to assess magnitude of anthropogenic and natural effects on the quality of river surface water. Therefore, we considered some parameters including electrical conductivity, total dissolved solids, bicarbonate, chloride, total and temporary hardness, calcium, potassium, sodium, sodium adsorption ratio, sulfate, pH and magnesium as physicochemical variables. The results indicated that water quality in Siahab and Naharkhoran stations was in the poorest quality among other stations



