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( : ) GIS

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(DEM)

GIS

ArcView

PEGGER

GIS

GIS

DEM GIS

GIS

PEGGER

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Segebaden

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TON× KM  
Corrected TON× KM  
Raster Base GIS

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Efficiency  
Geographical Information System

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51°32'

36°40'

36°27'

51°43'

PEGGER

ArcView

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DGN<sup>1</sup>

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DGN

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DESIGN file

Digital Elevation Model

Resolution

Aspect

Slope

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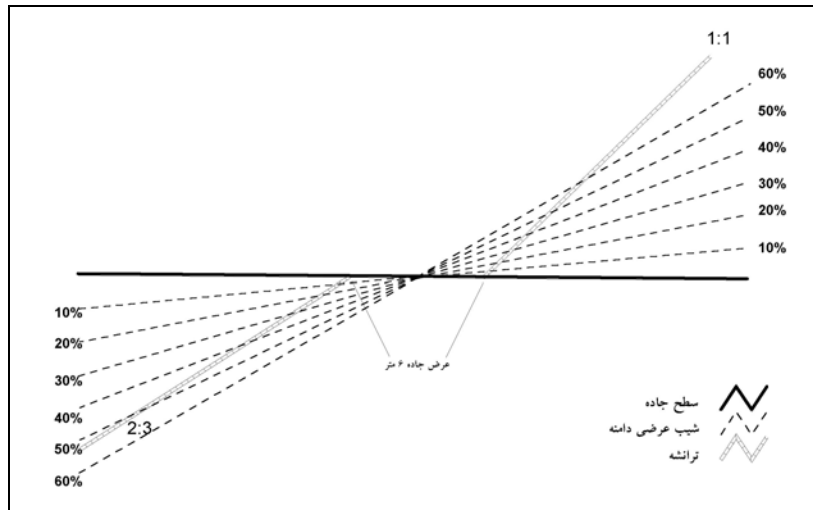
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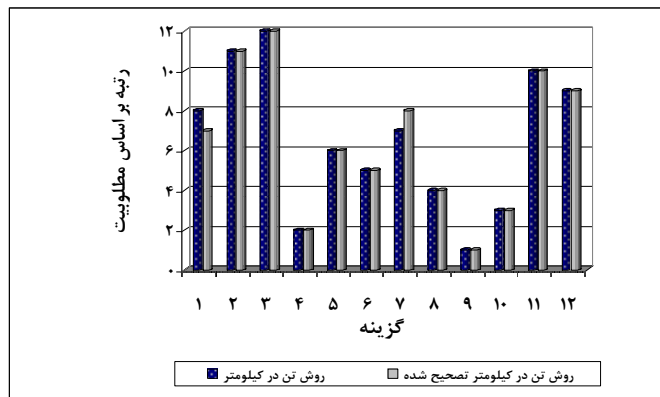
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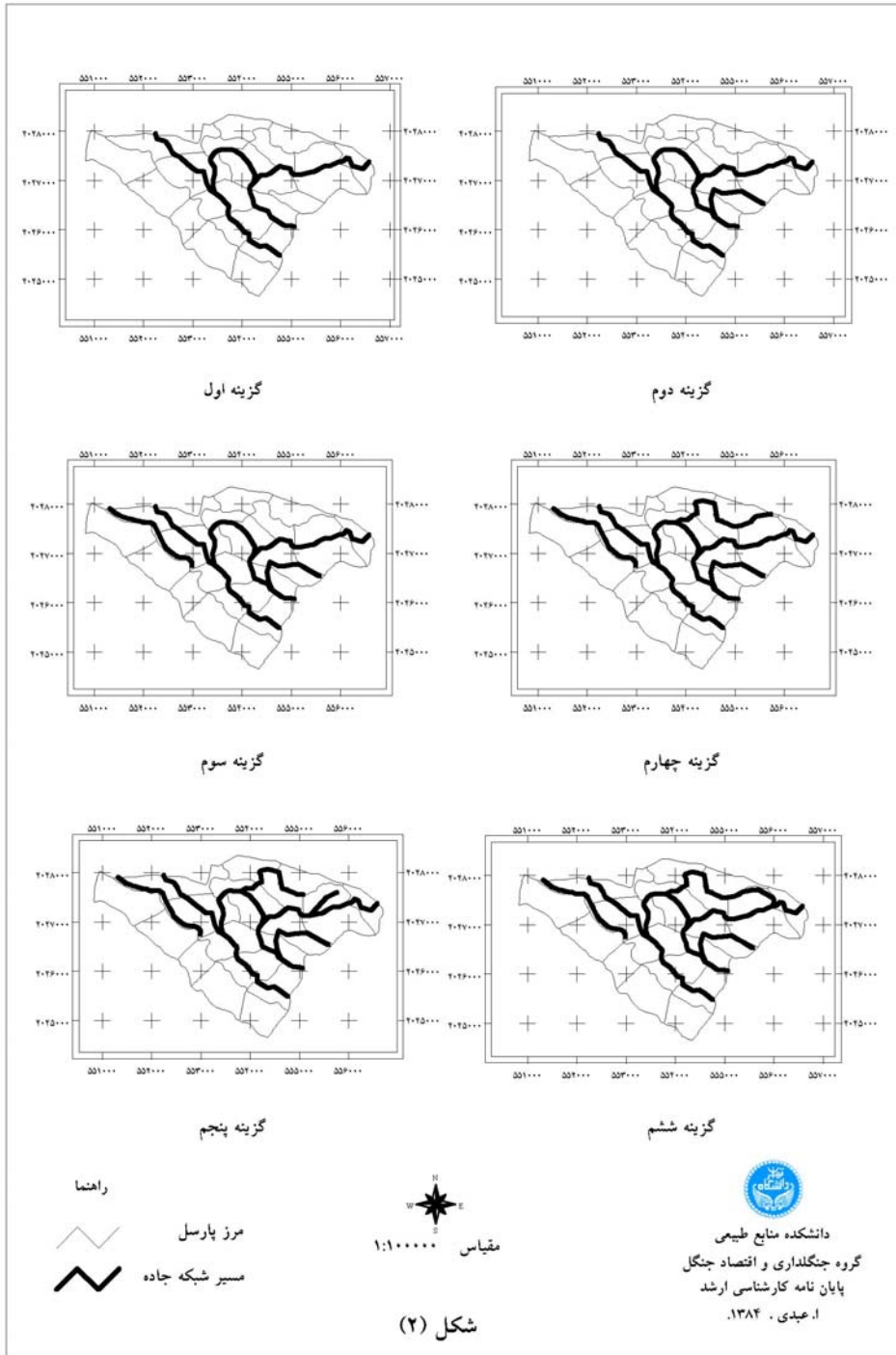
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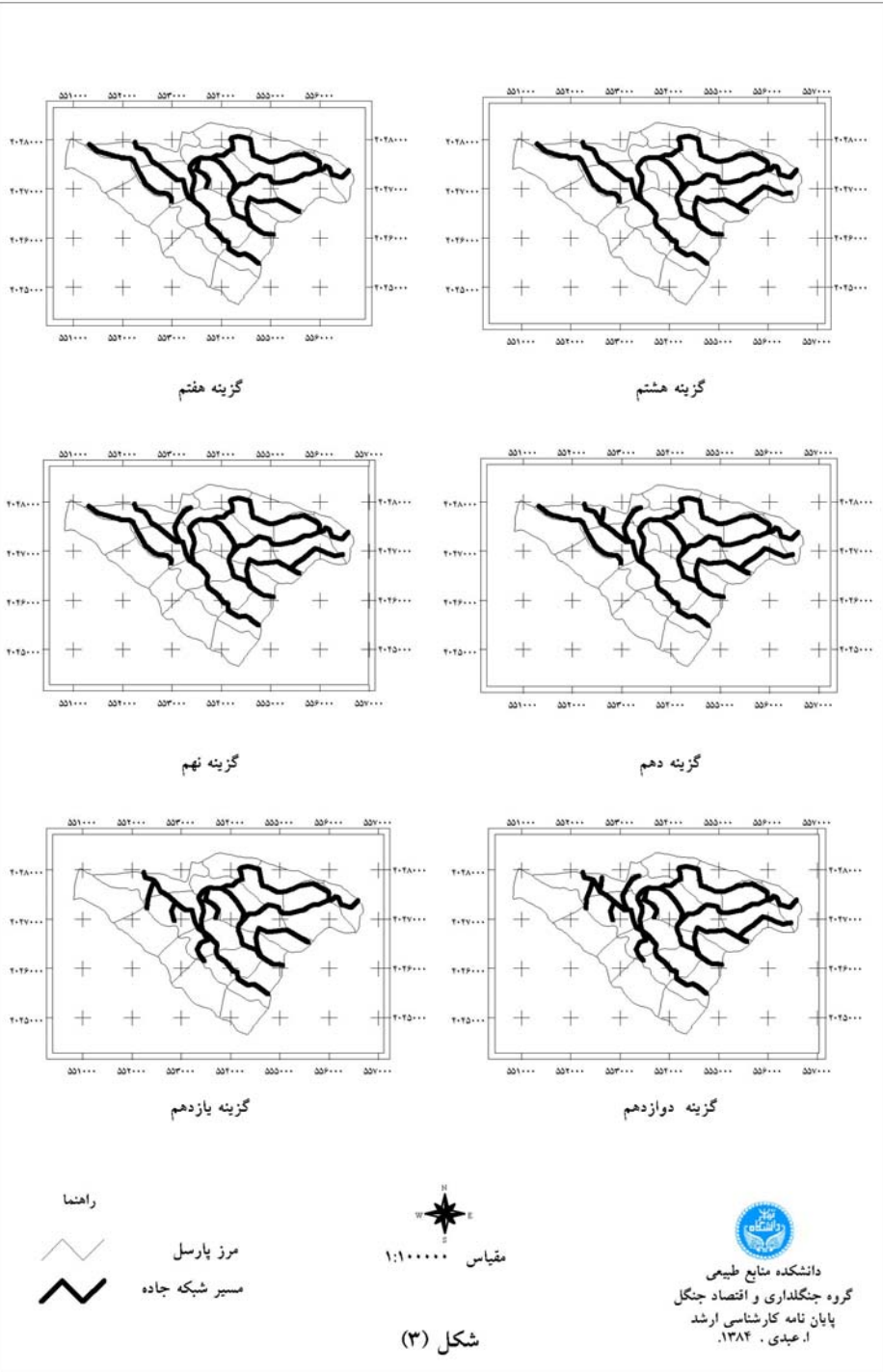
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GIS  
(1997) Dean

(1998) Murry

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## Planning and technical evaluating of forest road networks from accessibility point of view using GIS (Case study: Namkhane district, Kheyroud forest)

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### Abstract

Road construction in forests absorbs huge resources and imposes highest costs on the forest management. Therefore, various choices should be evaluated and the least costly one with highest technical efficiency should be selected. Conventional methods of road planning are slow-moving, time-consuming and uneconomical, therefore, to reduce cost and time of planning; the number of road variants is reduced although it has an adverse effect on planning quality. The objective of this research was to develop a method for planning road networks and technical assessment of the roads by using GIS with respect to the feasibility of transporting wood from forests. Firstly a digital elevation model (DEM) was prepared based on digital topographic maps at the scale of 1:25000 and was used for collecting required data. In the next step, 12 road variants were designed using PEGGER (an extension of Arcview software) and digital contour map, and by taking advantage of GIS possibilities the passing percent of all variants of all gradients and directions were derived. Finally all variants were evaluated from a technical point of view in GIS using TON×KM and a new method called CORRECTED TON×KM and the optimal variant was chosen.

**Keywords:** Forest Road Planning, Road variant, GIS, DEM, Technical evaluation