

---

Archive of SID

(E-mail: [rfallah@chamran.ut.ac.ir](mailto:rfallah@chamran.ut.ac.ir))

|| : || :

...



( )

( )

( )

( )

( )

Archive of SID

( )

/

( )

( )

( )

( )

---

ETM+

Archive of SID

- 
- Enhanced Thematic Mapper(ETM)
  - Open Questionnaires

...

(.)

$$\text{Max } \sum (A_i \cdot X_i - C_i I_i) \quad (.)$$

$$X_i \geq 0$$

$$I_i \geq 0 \quad i = \{0, \dots, n\}$$

(.)

$A_i$  (.)

$C_i$   $X_i$

$I_i$

(.)

(.)

(.)

Archive of SID

---

Archive of SID

( )

LINDO6.0

- 
- Infeasible Solution
  - Slack/Surplus
  - Sensitivity Analysis
  - Coefficient Range

---

- Simple Query Language



---

Archive of SID







...

- 
- 10- Martinez-Falero, E., S. Gonzales – Alonzo, 1995. Quantitative Techniques in Landscape Planning, CRC Press Inc. USA, 290 pp
  - 11- Ngailo, J. A., j. M. Shaka, Ph. A. Kips, & F. van der Wal, 1994. Land Use Optimization Along the Sukuma Catena in Maswa District, Tanzania, John Wiley & Sons Ltd, The Netherlands, 420 pp
  - 12- Patterson, T. W., 1979. Land Use Planning, Techniques of Implementation, Litton Educational Publishing Inc., New York, N.Y. USA, 520 pp
  - 13- Vink, A.P.A., 1975. Land Use in Advancing Agriculture, Springer-Verlag, Berlin, Heidelberg, Germany, 417 pp.
  - 14- Whitby, M.C. K.G. Willis, 1978. Rural Resources Development: An economic Approach, Methuen & Co. Ltd, University Press, Cambridge, UK, 290 pp.

Archive of SID

## Linear Programming Model to Allocate Land to Different Land Uses in Keleibar-chai Watershed

S. R. Fallah Shamsi<sup>1</sup>      H. Sobhani<sup>2</sup>      A. Saeed<sup>3</sup>      A.A. Darvishsefat<sup>4</sup>      A. Faraji Dana<sup>5</sup>

### Abstract

Land, as Location as well as a production factor plays an important role in economic planning. There are numerous constraints that affect land allocation to a certain category of land uses. Previous studies have indicated the capability of Linear Programming (LP) to solve resources location as well as allocation problems. Land as well as other resources are allocated to different land uses due to their scarcity and comparative advantages in different production procedures.

In this study a model has been established for 28173 ha of Keleibar-chai watershed; including 53 variables and 62 constraints. The study area has been classified to homogenous sub-regions, according to their natural potential to produce different goods and provide numerous services. Homogenous areas have been defined as a group of constraints in the model.

The model explains how an LP Model could be related to location and economic constraints. In the region, rangeland, fodder cultivation as well as related processing industries are economically more efficient than dry farming of wheat, barely and orchard management. About 700 ha have been allocated to hay production and irrigated barley cultivation. This will supply enough complementary fodder to support 12521ha of the region for range management. It may forego some area of the protected forest to become dedicated to rangeland in the process of land planning in the region.

**Keywords:** Linear programming, Land allocation, Optimization, Land use change.

---

<sup>1</sup> – Ph.D. Scholar, Faculty of Natural Resources, University of Tehran (E-mail: rfallah@ut.ac.ir)

<sup>2</sup> – Associate Professor, Faculty of Natural Resources, University of Tehran

<sup>3</sup> – Assistant Professor, Faculty of Natural Resources, University of Tehran

<sup>4</sup> – Associate Professor, Faculty of Natural Resources, University of Tehran

<sup>5</sup> – Associate Professor, Faculty of Economy, University of Tehran