The consequences of ground-water level lowering on the socio-economic conditions of the population at the Darab central plain, Iran

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1. Problem Statement

Due to the ground-water overuse, the ground-water table of the Darab watershed has decreased, on average, by 1.18 meter p.a. between 1993 and 2006. Dependency on agriculture, lack of alternative employment possibilities, and population growth result in high priority of irrigation farming, yet at the expense of future generation in term of water availability. Due to ground-water level lowering, drinking and irrigation water shortage has occurred in the region, an can be observed in an increasing number of villages.

2. Objective

The research will find the consequences of ground-water level lowering on the socio-economic conditions in the Darab central plain.

3. Methodology

• Quantitative descriptive analysis
• Microsoft Excel for data analysis and Arc-GIS for data processing.

4. Data Base

Secondary data for population, cultivation area and ground-water level, collected from governmental organizations of Iran, Fars province and Darab county, were used for the analysis, provided by:

• Ministry of Jihad-Agriculture
• Fars Province Jihad-Agriculture Organization
• Iran Minister of Interior
• Water resource management organization

5. Research Area

The villages are located in Darab county, Darab county is located in arid and semi arid zone of Iran.

• Annual average precipitation rate: 248 mm (during 1996-2006).
• In average 90% of income in Darab county is due to agriculture activities.

6. Results

• Ground-water level has decreased in all the sample villages between 1996 and 2006 (see Fig. 2).

7. Conclusion

Villages can be grouped in five stages depending on the level of ground-water depletion:

• First stage: Population increases highly (Hadi Abad village).
• Second stage (flourishing period): Consequences of ground-water lowering is not realizable. Extension of cultivated area, population growing and ground-water lowering (Bargan village).
• Third stage: Cultivated area converts to fallow land. Production decreases (Madun and Bakhtajerd villages).
• Forth stage: Farming is impossible (Dehkasan village).
• Fifth stage: Population decreases (Dash Pir Gheib and Pir Morad villages).