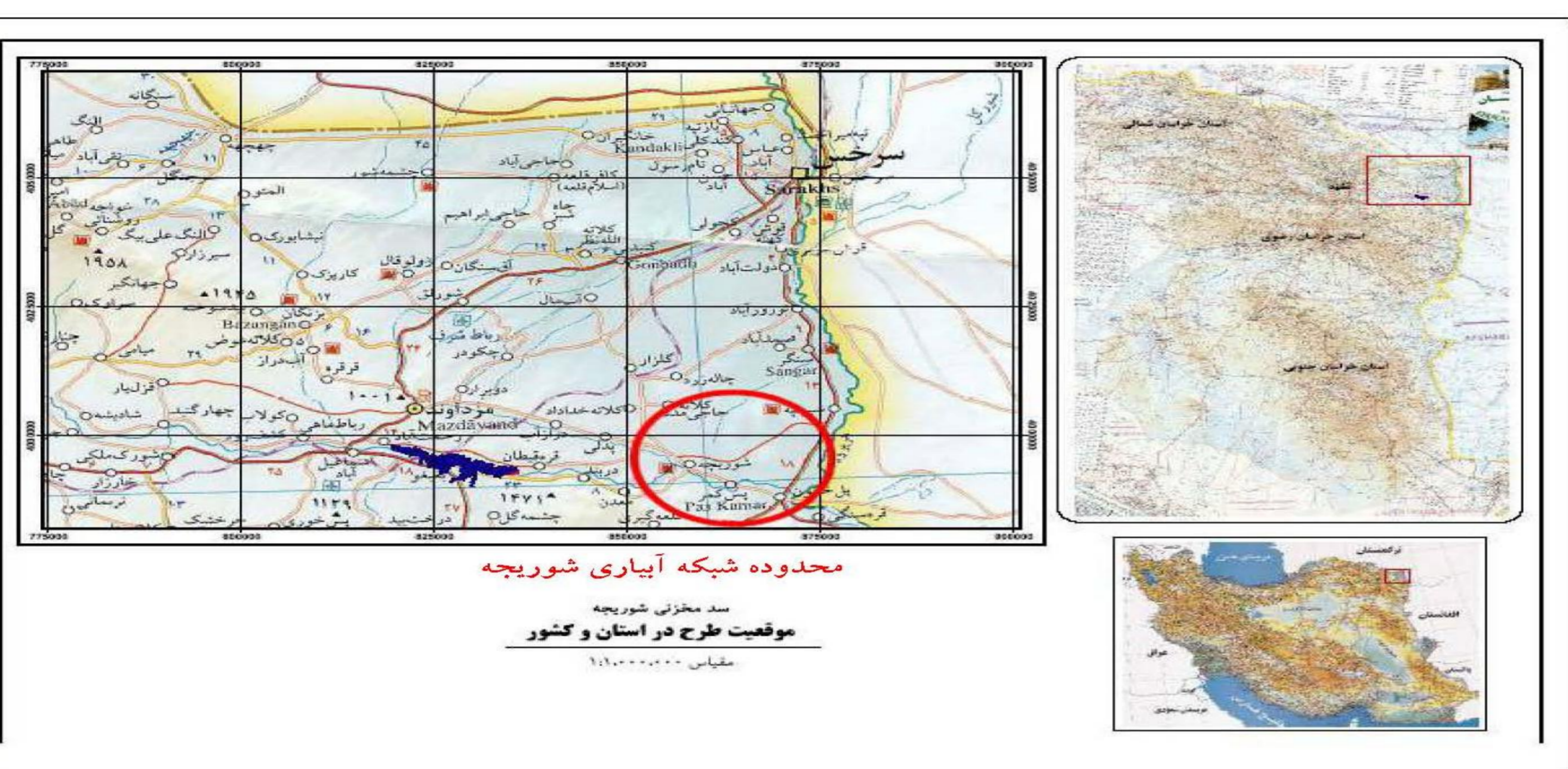


1-Introduction and project location

Determination of accessible water is not easy in reservoir dam which is constructed in arid zone, especially in seasonal rivers due to discharge variation. One of the main purposes of dams is downstream developing agriculture lands, but land areas depend on the water of reservoir.

Kashafrud River basin is located in north east of Iran in arid zone. Shorijeh dam was studied on Kashafrud River and it's been constructing. Although of limitation of downstream lands, settle of land area or irrigation district are the main issue due to annual discharge variation. This study is aimed to propose a proper solution

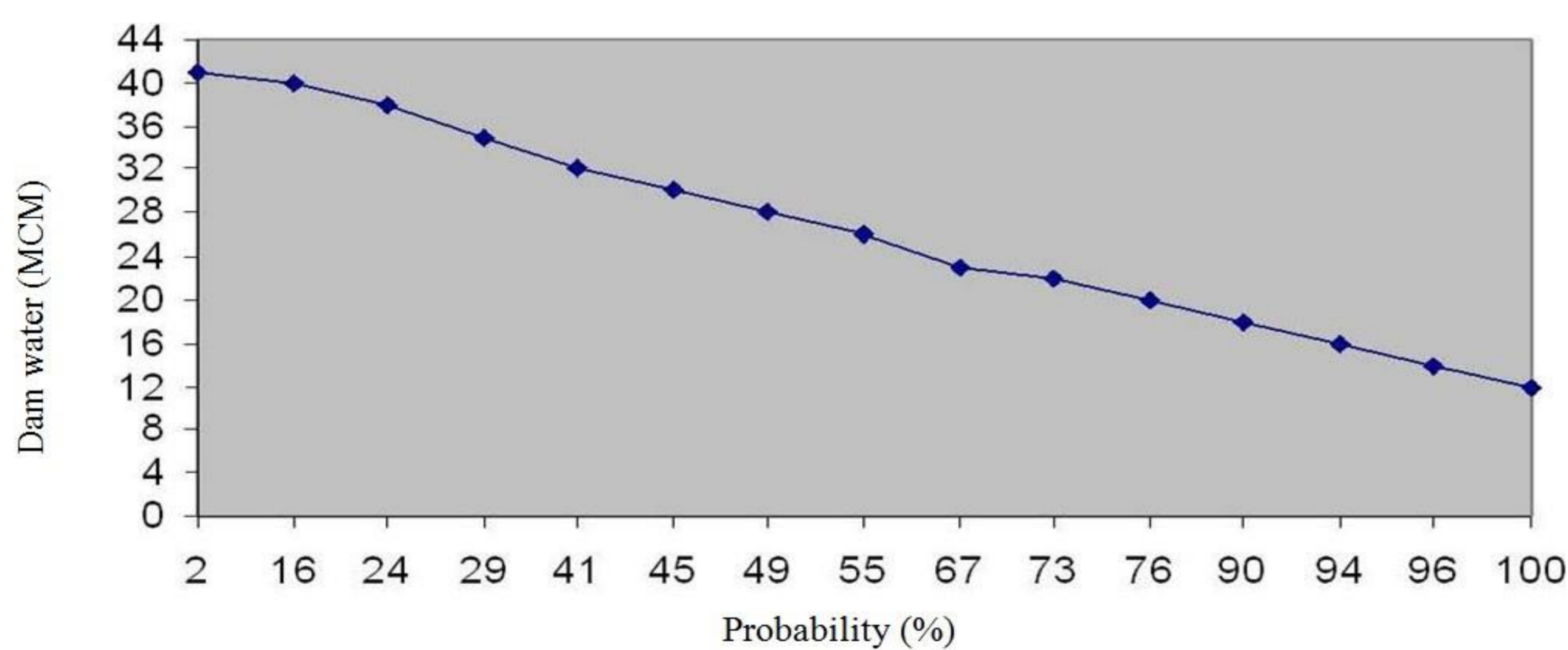
Figure 1- project location in Iran:



2-Reservoir's outlet prediction

On the base of last 50 years recording, Discharge variation has been shown 133 percent, whereas maximum and minimum annual income were 307 and 1 million cubic meter (mcm) respectively . Dam reservoir capacity is advised 200 mcm, according water resources management; minimum and maximum outlets of dam are estimated 13 and 40 mcm.

Figure 2-Reservoir's outlet prediction



Water quality assessments show:

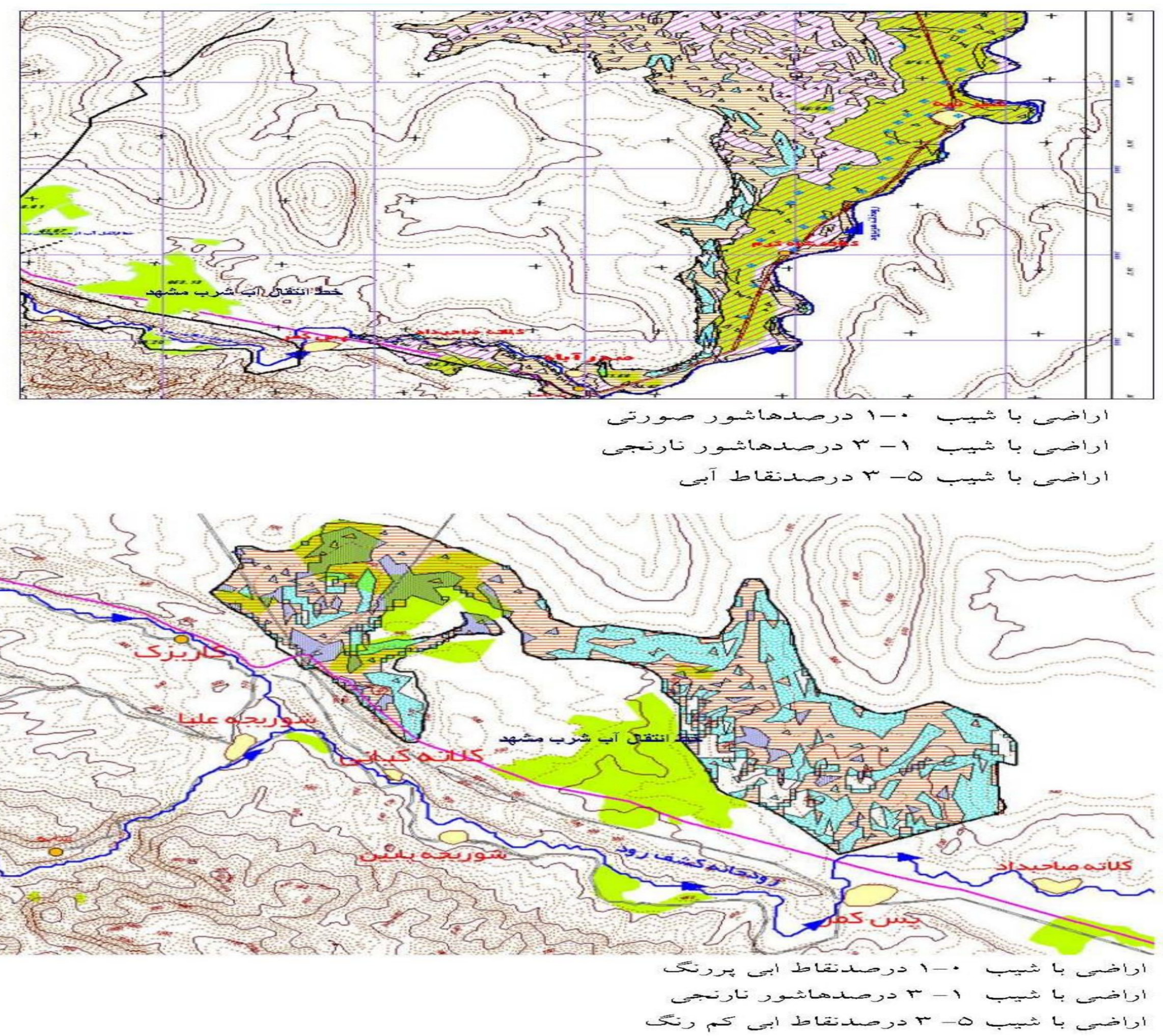
- Hard limitation due to salinity and ions affection,
- Less or moderate limitation due to permeability and other affection.

Therefore for future agriculture pattern, resident plants to salinity are recommended

3-Land recommendation

Along 30 kilometers of down stream's dam in both banks of rivers, hilly and mountainous lands are locate and no appropriate land could be settled for irrigation network. But suitable terrain locates after Shorijeh village alongside Kashafrud River up to Harrirud River joint. Suitable lands were distinguished in 0-5 percent slope, three rank slope (0-1, 1-3 and 3-5) considered in this regard. Finally with overlay of soil map, appropriate land could advice. Process introduced two options nearby Pishkamar and Shorijeh villages which depict in following figures.

Figure 3-developing lands of two options (Shorijeh and Paskamar) with different slope ranks.



4-Developing lands area

Appropriate lands and crop pattern are settled. Water for irrigation should be regulate with water income from dam, but land area's determination is not so easy and needs more accurate due to intensive variation discharge along operation of dam.

In one hand, Crop pattern demands 9500 cubic meter per hectare per year (m³/ha/y), 20% deficit irrigation reduce it to 7600 (m³/ha/y), and in the other hand land area be supposed to between 1600 to 5000 hectare.

Obviously economic analysis should apply to compare between difference land areas. Benefits (B) and costs (C) of different options were evaluated. Two main economic indexes were applied to compare options: B/C and B-C. Two following figures show in both indexes optimum developing lands area are 3200 hectare, Because both of B/C and B-C have maximum value in 3200 hectares area

Figure 4-Benefits-Costs versus land areas

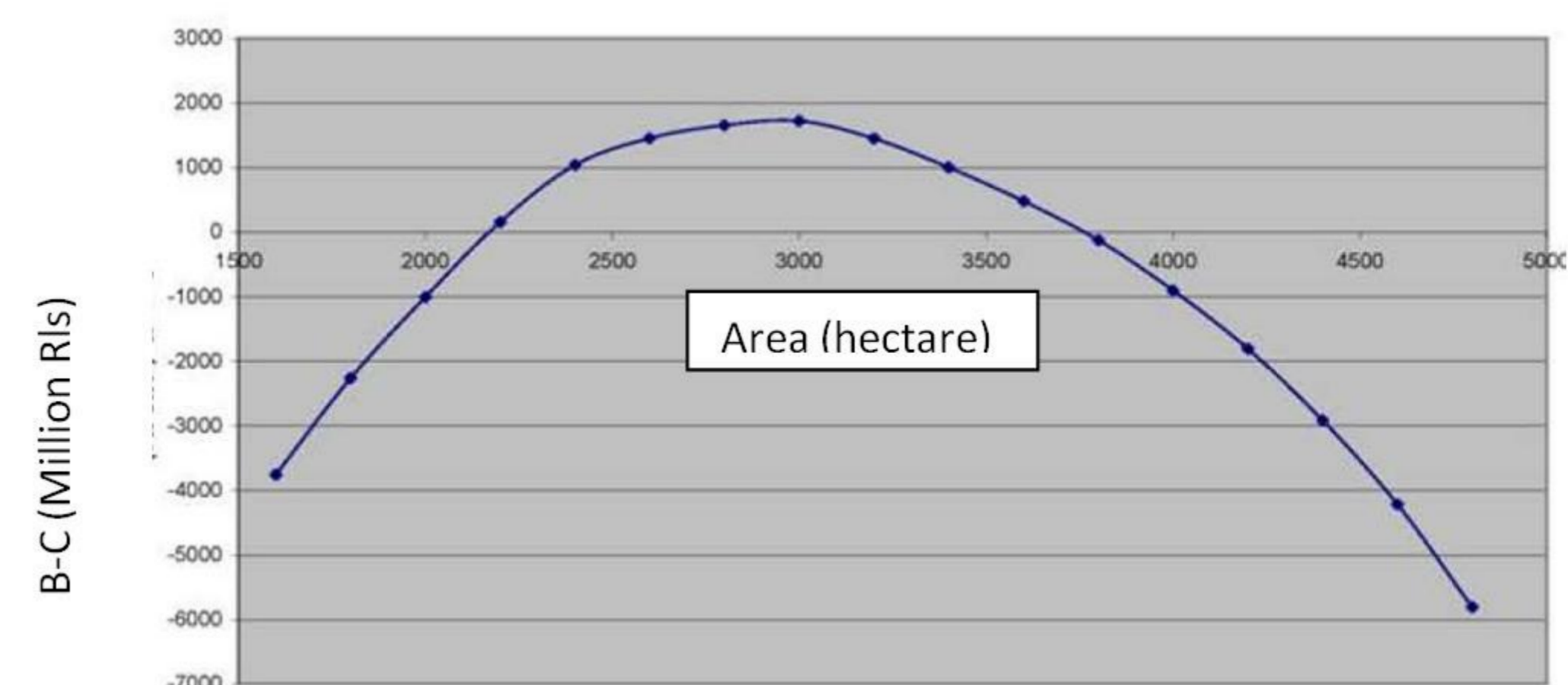


Figure 5-Benefits/Costs versus land areas

