

## عنوان مقاله:

What is the Best Plan for Flood Mitigation? A Case Study in North-Eastern Part of Iran

## محل انتشار:

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## نویسنده:

ALI HEIDARI - Iran Water and Power resources development Company (IWPC)

## خلاصه مقاله:

Golestan catchment has been located in the north-eastern part of IRAN and flood and debris flow has frequently affected this catchment in the past decade. Extreme events of the catchments which mostly occur in the summer, have damaged hundreds of lives and thousands of livestock and destroyed a lot of infrastructures in recent years. Magnitude of 2001 flood was as much as probable maximum flood (PMF) of Golestan dam and it fortunately did not overtop the dam. Structural in association with non structural measures have been identified essential elements of floodmitigation in master plan. Two-phased plan including urgent measures and master plan was prepared for the basin as mid-term and long-term solution respectively. Regarding to high peak discharge and low volume of floods, flood detention and attenuation in upstream areas was assessed as an effective measure in order to mitigate flood magnitude in down stream damage centers. A detention dam was relocated in the upper catchments where had major contribution in extreme floods of basin. Several alternatives was assumed for capacity of reservoir and spillway ofdetention dam and the best alternative was selected based on maximum justifiable flood attenuation due to high vulnerability of down stream areas. Dam height was determined 58 m which provides 23 MCM volume in order to store and attenuate real time floods. The detention dam can totally control flood peak discharge up to 200 year floods and reduce 1000 year peak discharge to one third at the dam location. Consequently the dam would mitigate damage center flood at least 40% comparing to without project situation. The detention dam not only increase flood zones safety, but also decrease the magnitude of design flood of constructed river training measures. In this paper, the proposed master plan is discussed and impact of the detention dam is evaluated in the basin

## کلمات کلیدی:

Flood, mitigation, damage, measures, detention

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