

Analyzing the Consequences of Development of Pressurized Irrigation Systems in Iran

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As a solution to cope with the occurring drought in most regions of the world and Iran, the pressurized irrigation systems have been extensively used. Due to feasibility of implementing these irrigation systems, an extensive pressure could be imposed on groundwater resources, which would be a real threat for sustainable groundwater withdrawal, and the goals of real water saving strategies in aquifers of watersheds will not be met. Analysis showed that it is possible to achieve high irrigation efficiency if the pressurized irrigation systems are correctly and technically designed based on the climate of the region and then installed and performed appropriately. It is realized that sprinkle irrigation systems might not be recommended in the warm and dry climate of Iran, and instead the localized irrigation systems are suggested and favorable over them. Nevertheless, it is necessary to adopt several fundamental management strategies to prevent the occurrence of rebound effect. Some of the main strategies that would potentially prevent rebound effect are including but not limited to restricting the expansion of cultivated areas, considerable increase of water price, volumetric delivery of water to farmers, changing cropping pattern that is combined with deficit irrigation strategies, crop improvement, and importing virtual water.

Key words: Farm scale, Real water saving, Rebound effect, Watershed scale.

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