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rainy season. Also due to rapid urbanization in the impervious layer on the ground surface increasing rapidly which has already reduce the natural recharge drastically. Keeping in view the above mentioned fact the rainwater harvesting for recharging ground water artificially is one of the ideal solution to overcome the water crises in the state. This will not only improve the quality of ground water but also check the declining of water table problem, improve the roads condition, reduce load on sewage system and reduce mosquito’s problem.

The Punjab Agricultural University has after evaluating performance of rainwater harvesting structures recommended the design for different rooftop areas. Now more than 35 structures have been established at different places in Punjab under the technical guidance of the university. Impact analysis of some of these structures shows that in the year 2007 and 2008 contribute 2.01 and 5.82 million litres of rainwater was recharged to ground water.

There is need to adopt this technique at mass level to get significant results. This will be possible only with the help of people participation, incentive from government and proper technical guidance and awareness. The paper will discuss design, impact analysis the role of Scientist, Government, Non government organization and people for adoption of this technique at mass level.

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ST 9

Evaluation of the effects of climate change on future drought trends
(Case study: Yazd in central Iran)

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Climate change and global warming is a problem which seriously affects all dimensions of human life around the World. Frequent droughts, storms and flooding are a part of climate change effects causing huge damages to the societies. Iran is a country located in arid belt of the World and therefore suffering from inadequate precipitation and water resources. During few decades, climate change has intensified this problem by increasing drought severity and duration, time variation of the precipitation and flood events. Inside the country central hyper arid regions such as Yazd area with about 65 mm annual precipitation are more likely to be affected by climate change in the future.

This research has been designed to assess the effects of climate change on droughts quality and trend in Yazd area in the future decades. The purpose was to get a view about quality and quantity of precipitation, temperature and available water resources of the area in the future, to be able to have a better planning and use of the water resources in this region. To do this, drought severity indices
including RDI and SPI were calculated for the period of 1954 to 2004. Then using GCM (General Circulation Models) models, it was tried to predict drought condition in next decades. According to the local experiences HadCM3 model with A2 and B2 scenarios (to eliminate uncertainties) was used to predict temperature and precipitation of the next decades in this research. After prediction of temperature and precipitation from now to 2039, RDI and SPI were calculated to evaluate drought condition in this period. According to the results taken from this research, it can be said that climate change has a serious and effective impact on droughts severity and period in this hyper arid region and intensifies water shortage during next decades. Therefore it is necessary for the water authorities to take these results into account, and have applicable water resources management strategies to be able to deal with this problem in the coming decades.

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ST 10

Effects of Buildings on Climate

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India needs to analyze the efforts in areas such as energy conservation, renewable energy, wasteland development and afforestation – all of which contribute towards either reducing CO₂ emissions or increasing CO₂ removal from the atmosphere for combating global warming and reducing climate change.

The buildings consume a sizeable share of electricity and other forms of energy. The generation of electricity through coal and other fossil fuel power plants, hydropower plants and nuclear power plants is associated with emission of green house gases resulting in global warming and climate change and other environmental problems, conservation of electricity in buildings and use of renewable energy systems for generation of electricity may be also a tool for combating global warming. Several techniques are available to conserve the electricity in buildings. The Government of India has enacted Energy Conservation Act and Energy Conservation Building Code to conserve the energy consumption in buildings. The environmental architectural concepts, the bioclimatic concepts and solar passive heating and cooling concepts have been successfully used all over the world including India to conserve energy use in residential and other buildings. The concepts have also been developed for conservation of heat and other forms of energy to be used in the buildings. The green building concept is also growing fast in India as well as other countries. The green buildings do not create environmental problems and conserve our natural resources with the idea of recycling of water and materials.