Chinese forest project could reduce number of environmental disasters

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A study published in *Journal of the American Water Resources Association* states that the "Green Great Wall," a forest shelterbelt project in northern China running nearly parallel to the Great Wall, is likely to improve climatic and hydrological conditions in the area when completed. The project, which relies on afforestation (a process that changes land without dense tree cover into forest), could lead to an increase in precipitation by up to 20 percent and decrease the temperature in the area. The findings could have important implications for similar projects throughout the world.

"Many regions in the world are facing climate-related environmental disasters such as persistent drought, dust storms and water shortage," says Dr. Yongqiang Liu, lead author of the study. "Furthermore, it is very likely that disasters will become more severe in the future due to projected climate change in response to greenhouse effects."

Many climate models predict an increased occurrence of environmental disasters in the future because of expected hotter and drier conditions. A recent study, for example, projects that the dust bowls in the 1930s could return to the southwestern U.S. as a result of climate change. Forests have the ability to regulate regional climate. Afforestation, therefore, may be a useful approach to mitigate the effects of the environmental disasters and climate change.

The study used a regional climate model to simulate the potential of improving regional hydroclimate conditions resulting from the

afforestation project. The results show that, in addition to precipitation and temperature changes, the project also will improve relative humidity, soil moisture and reduce prevailing winds and air temperature.

Forests play an important role in mitigating the effects of greenhouse gases. While their effect on the carbon cycle has received the most attention from environmental conservation groups, this study provides evidence for the importance of water and heat exchange. The effect of these processes on temperature and precipitation could be equally important in offsetting greenhouse effects.

Source: Wiley