

**ARSENIC CONTAMINATION AND MOBILIZATION
ACROSS ALLUVIAL PLAINS OF DISTRICT GUJRAT,
PAKISTAN**



By

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ABSTRACT

The current research was conducted to investigate the impacts of irrigation well water on the irrigation soil quality of the flood plain areas of Gujrat district. During October 2016, a total of 15 wells samples were collected along the flood plain areas of River Chenab and Jehlum which are located at Gujrat district. The samples were analysed on-sites for Physio-chemical parameters (That is PH electrical conductivity, sulphates, Nitrates, Fluorides, Iron and Arsenic). All these parameters were analysed on site with the help of portable instruments. The results were compared with the standard values of WHO Permissible limit for irrigation water; also NEQS (National Environmental Quality Standards). From the result it was found that Physical parameters (i.e. Arsenic and Iron), some of them were well above the standards. Therefore, it was concluded that some of the samples were not found to be fit for the irrigation purposes. This was because Arsenic is transferred from irrigation water and paddy soil to different parts of the rice plant with different patterns of distribution. Thus, ground water enriched with Arsenic affects the paddy soil and rice crops. By applying various statistical techniques, we concluded that irrigation well water contaminated with Arsenic has a profound effect on the irrigation soil of the flood plain areas of Gujrat District.

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ABBREVIATIONS

WHO	World Health Organization
RMS	Rocky mountain system
DCH	Dhaka Community Hospital
DNA	Deoxyribonucleic acid
ITS	Industrial testing system
UNICEF	United Nations International Children's Emergency Fund
FAO	Food and Agriculture Organization
GIS	Geographic information system
PMD	Pakistan meteorological department
SD	Standard deviation
SPI	Standardized precipitation index
USGs	United states geological survey
WMO	World meteorological organization

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