

**WATER QUALITY ASSESSMENT OF STREAM PASSING
THROUGH SECTOR (D-12, E-11 AND F-11) ISLAMABAD FOR
NON-POTABLE PURPOSES**



A Thesis Submitted to the Bahria University Islamabad in partial fulfillment of the requirement
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ABSTRACT

The current research was conducted to investigate the water quality of stream passing through the sector D-12 including sub-sectors, Golra village, Bhakhra-Ku village, sector E-11 and F-11 of Islamabad for non-potable purposes. For the purpose, water samples were taken from different locations along the length of the stream during the month of October, 2014. The samples were analyzed for different parameters including temperature, pH, flow rate, turbidity, electrical conductivity, color, total solids, total dissolved solids, salinity, dissolved oxygen, chemical oxygen demand, SO_4^{2-} and Cl^- using standard methods. Some of the measurements were done in the field like flow rate, temperature and color. The other parameters were analyzed in the laboratory using the standard methods. The results were compared the standard values of NEQs (National Environmental Quality Standards) and PSQCA (Pakistan Standards for Quality Control Authority).

The results shows that almost all the physical and chemical parameters were found to be in the permissible limits as prescribed by WHO and NEQS of Pakistan except pH, turbidity and TDS at Site 6, 7, 8 and 9. These higher value of TDS, turbidity and pH at site 6, 7, 8 and 9 suggesting the mixing of effluent and waste in a stream. The results of physico-chemical parameters of stream water quality according to current research suggested that there is no potential harm for using this water for non-potable uses such as, construction of new buildings and roads etc. However, detailed study should be conducted to know the suitability of stream water for crop production.

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ABBREVIATIONS

APHA	American Public Health Association
BOD	Biological Oxygen Demand
CDA	Capital Developmental Authority
COD	Chemical Oxygen Demand
DO	Dissolved Oxygen
EC	Electrical Conductivity
GDP	Gross Domestic Product
MAF	Million Acre Feet
MOE	Ministry of Environment
n.d	Not Defined
NEQ	National Environmental Quality Standards
NTU	Nephelometric Turbidity Unit
NWP	National Water Policy
PCRWR	Pakistan Council of Research in Water Resources
PEPA	Pakistan Environmental Protection Agency
RBF	Round Bottom Flask
SOE	State of Environment
SOP	Standard Operating Procedures
PSCEA	Pakistan Strategic Country Environmental Assessment
PSQCA	Pakistan Standard Quality Control Authority

TDS	Total Dissolved Solids
TS	Total Solids
TSS	Total Suspended Solids
WHO	World Health Organization
$\mu\text{S/cm}$	Micro Siemens per centimeter
mg/L	Milligrams per liter
m^3/sec	Cubic meter per seconds
$\text{K}_2\text{Cr}_2\text{O}_7$	Potassium dichromate
Ag_2SO_4	Silver sulfite
HCl	Hydrogen chloride
AgNO_3	Silver nitrate
BaCl_2	Barium chloride
BaSO_4	Barium Sulphate
Cl^-	Chloride
SO_4	Sulphate

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