

Document for Installation of Water Purification Plants in each District of Pakistan

1. Background:

Pakistan Environmental Protection Agency intends to implement a project “Clean Drinking Water Initiative” whereby water purification plants of 2000 gallons/ hour capacity in five different packages shall be installed on turn key basis in each district of Pakistan (including 24 in NWFP, 34 in Punjab, 26 in Balochistan, 21 in Sindh, 1 in Islamabad, 7 in AJK, 3 in NA and 5 in FATA). Each filtration plant shall be complete in all respects consisting of various stages including pre-filtration, filtration, purification and ultra-violet disinfection etc. The project will involve civil construction to house the filtration plants. According to the availability of the source of water and the kind of treatment required, following five various packages have been designed under the proposed project.

- I. Package A:** Under this package, water purification plants will be installed at places where source of water is tube well operated by WASA, City/ Tehsil Government or any Development Agency and there is no facility of any storage from where the water could be pulled out. In this case the design of the Water Purification Plant will have the provision of an underground tank and an overhead tank. The source water in this case should not contain high concentrations of Nitrates/ Nitrites/ Calcium/ Magnesium or high TDS. The water shall be treated through Rapid Sand (Multimedia) Filter, Granular Activated Carbon Filter and Ultraviolet Sterilizer.

- II. Package B:** Under this package, water purification plants will be installed at places where source of water is a storage facility (over head tank) operated by the WASA, City/ Tehsil Government or any Development Agency. The source water in this case should not contain high concentrations of Nitrates/ Nitrites/ Calcium/ or Magnesium or High TDS. The water shall be treated through Rapid Sand (Multimedia) Filter, Granular Activated Carbon Filter and Ultraviolet Sterilizer.

- III. Package C:** Under this package, water purification plants will be installed at places where source of water is neither tube well nor any facility for storage is available in shape of overhead tanks. In this case a deep well will have to be bored to obtain water. The design of the Water Purification Plant will have also the provision of an underground tank and an overhead tank. The water shall be treated through Rapid Sand (Multimedia) Filter, Granular Activated Carbon Filter and Ultraviolet Sterilizer.
- IV. Package D:** Source water in this case contains high concentrations of Nitrates/ Nitrites/ Calcium or Magnesium. A Nitrate Chamber + Water Softener chamber will have to be provided in assembly line along with Rapid Sand (Multimedia) Filter, Granular Activated Carbon Filter and Ultraviolet Sterilizer
- V. Package E:** In case the source water contains Arsenic/ other inorganic pollutants or very high TDS etc. ,additional appropriate technology for treatment of contaminants will be provided under this package.