

## Scope and limitations of Ground Water Prospects Maps

### **Scope:**

- Ground water prospects maps may be used by the field Officers of the departments concerned in the respective states to select the sites at appropriate places
- It helps mainly in identification of prospective locations for narrowing down target zones for follow-up detailed hydrogeological and geophysical surveys at appropriate places for drilling.
- These maps are the good inputs for aquifer mapping.
- One of the input for resource estimation for future ground water development for the given area.
- The maps are prepared based on the availability recharge conditions i.e rainfall, depth to water table, availability of water in the water bodies during the period of the mapping. Hence depth and yield will vary.
- VIBGOR colour scheme is maintained for indicating yield and hatching pattern for depth. It does not mean that entire polygon gives the same yield but it varies within the unit due to heterogeneity. Hence sometimes yield may go one step up or down. It is because of rainfall variations.
- Maps help in identifying the ground water exploitation areas (through ground water irrigated patches) for addressing the suitable recharge structures for improving the ground water levels.

### **Limitations:**

- A. Pin pointing bore / tube well points ( $4\frac{1}{2}$ " &  $6\frac{1}{2}$ " dia) may not be accurate.

#### *Reasons:*

- Scale of mapping (1:50,000 scale)
- Accuracy of map: The accuracy of the map is around 100 meters (which includes satellite data accuracy and other mapping errors).
- Heterogeneity of the terrain: These maps are generated with limited field checks hence in many cases the hydrogeomorphic units are extrapolated with the help of satellite image features.

#### *Recommendations:*

- Ground survey to estimate the detailed hydrogeological conditions
- Ground geophysical survey (electrical resistivity)
- Up scaling keeping the map as base to assess the micro level changes

## B. Depth variations

### *Reasons:*

- Dynamic hydrological conditions
- Varying subsurface condition.

### *Recommendations*

- Deeper depths to tap the multi layer aquifer system
- Drilling of the well near to the fracture system

## C. Yield variations

### *Reasons*

- Depletion of water table due to scanty rainfall
- Porosity and permeability variations within the unit

### *Recommendations*

- Implementation of recharge structure at the time of development of well
- Detailed ground geophysical survey

## D. Variations in estimated success rate

### *Reasons*

- Non availability of well information.
- Inaccessibility of the terrain

### *Recommendations*

- Drilling within the network of the fractures.

## E. Low yields/poor yields along the fracture areas

### *Reasons*

- Heterogeneity within the fracture aquifers.

### *Recommendations*

- Drilling within the intersection of the fractures and confirmed fractures with proper survey