

# **CHAPTER – V**

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## 5.1 SUMMARY

In the present study, thirty different stations were selected from two taluka such as Ankleshwar and Bharuch, which are as given below:

### 1. ANKLESHWAR TALUKA:

SARTHAN, TELVA, PILUDRA, UMARWADA, JETALI, PIPROD, AVADAR, PARDI MOKHA, SANGPOR, KOSAMADI, PANOLI, KHAROD, MOTALI, ANDALA AND UTIYADARA

### 2. BHARUCH TALUKA:

ADOL, AMDADA, AMLESHWAR, BAMBUSAR, BHUVA, CHOLAD, DABHALI, GHODI, HALDAR, KARELA, KELOD, OSARA, SAMLOD, SEGVA AND SHAHPURA

Overall, fourteen physicochemical parameters like pH, TDS, total hardness (TH), Calcium Content, Magnesium Content, Chloride Content, Sulphate, Nitrate, Fluoride, Alkalinity, Turbidity, Chemical oxygen demand (COD), Biological oxygen demand (BOD) and Dissolved oxygen (DO) were studied for the water samples collected from the 30 stations of Ankleshwar and Bharuch Talukas of Bharuch district of Gujarat. These parameters were also investigated in different season's like, winter, summer and monsoon. It was observed that some physicochemical parameters are within the permissible limit and some are deviated from the standard values (as recommended by WHO) at different stations of these two talukas in different seasons.

It was observed that groundwater of these stations is getting polluted due to more than 1000 industrial units present in these talukas. These industrial units are of diverse nature like chemicals, pharmaceuticals, plastics, textiles, dyes, fertilizers, pigments, paints, insecticides, speciality chemicals, synthetic fibres, fibre intermediates, polymers, pesticides, chloromethane, aniline, nitrobenzene, calcium carbide, carbon black titanium dioxide, aluminium fluoride, sodium chlorate, red phosphorous, soda ash, caustic soda, liquid chlorine, etc. The present study indicates that the ground water in Ankleshwar and Bharuch talukas is becoming contaminated due to the various industrial units of diverse range. A huge amount of waste is generated annually by these industries. Effluents from these industrial units, if not

properly treated and drained in waterbodies, then people living in villages around this area may be at risk because they are dependent on groundwater for their day to day need of water.

Crops growing on the polluted soil (due to effluent discharge and dumping of wastes) can absorb the pollutants from soil and ultimately that will reach to the food, causing dreaded disease like Cancer and mental illness. Contamination of groundwater in these talukas due to heavy metals is also a serious concern, but few reports are there in in this regard. The contamination of groundwater due to chromium may be linked to pigment and pharmaceutical industries and lead contamination may be associated with fertilizers, paint industries, and also due to the highways (NH8)

## **5.2 CONCLUSION**

The following conclusions were drawn from the present investigation –

1. The present investigation indicates that groundwater quality is deteriorating and as per requirements (of WHO & other agencies), water quality is not completely suitable for drinking purposes.
2. There need further investigations for water quality parameters as we well as for contamination due to heavy metals in the groundwater.
3. Earlier, the industrial units of Ankleshwar, Panoli, Dahej were discharging their effluents in to the river Amlakhadi. This river meets the Narmada river near Bharuch. In 1995, COD of this river water was about 11000 mg L<sup>-1</sup>(by GPCB), which is much higher than the prescribed Standard value of 250 mg L<sup>-1</sup>. BOD was also 442 mg L<sup>-1</sup>, which is far away from standards decided by GPCB (30 mg L<sup>-1</sup>). Even the GPCB ordered to stop about six Industrial units in this area because of discharging effluents in waterbodies. The present study shows that to prevent further pollution of groundwater, standard protocols for effluents, their treatment and discharge are to be followed strictly. If discharge of effluents and solid waste is not proper, then it will percolate to reach to groundwater and polluting it.
4. So many problems faced by peoples of these are such as cancers, paralysis, neurological, disorder, nerve damage, thyroid problems, liver damage, kidney problems, cardio-vascular disorder finger nail loss, diarrhea, hair loss, mottle teeth,

lung irritation due to drinking poor quality water so it creates scope for proper research to check quality of water.

5. Examination of physicochemical parameters of water collected from Bharuch region with respect to concentration of ions phosphate, chlorides, calcium, Magnesium and Nitrate values, C.O.D, B.OD, total alkalinity, pH, dissolved oxygen (DO) total dissolved solid (T.D.S).
6. In the present investigation, the physicochemical parameters of groundwater of Ankleshwar and Bharuch. talukas were studied in different seasons like, winter, summer and monsoon. So, the indication of variation of parameters in different seasons will provide opportunities to take necessary steps in advance to reduce the pollution before the season arrives. So season wise study is helpful in planning the techniques to be used to reduce a particular type of contamination.
7. The physicochemical parameters for drinking water through a light on its, quality and the present study is important in a way that people living in villages around these industrial area will become aware about the water they have been consuming for their daily needs. Another aspect of the present study is to plan and develop mitigation strategies timely for improving water quality to sustain life.
8. The waterable is continuously going down due to overexploitation of groundwater for daily needs industrial needs and irrigation purposes. There is urgent need to recharge the groundwater using rain harvesting systems and other artificial recharge techniques to raise the water levels. This should be accorded top priority.
9. Flow water may be properly managed to recharge and raise groundwater levels after the monsoon season.
10. The present study will make aware the farmers and villagers around these talukas for quality of groundwater they have been using for different purposes.
11. It is also necessary to reduce the dependency on groundwater, because much extraction of groundwater will decrease the therefore, availability of potable water. Along with groundwater recharge techniques, our traditional sources of water like, wells, step wells rivers, ponds, etc. should not be neglected these should not only be preserved but also to be revitalised.

