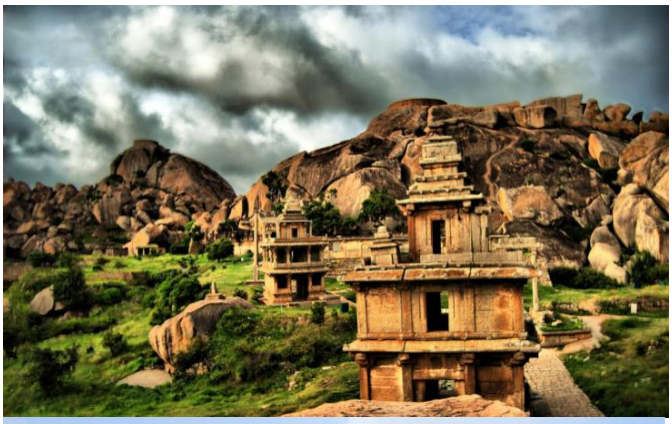
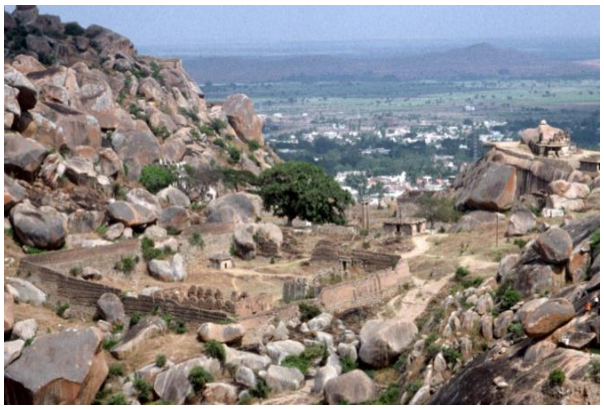
ANNEXURE 3

Status of Ambient Air Quality of Chitradurga, Karnataka





CENTRAL POLLUTION CONTROL BOARD
Zonal Office (South)
Nisarga Bhavan, Thimmaiah Road
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1. ABOUT CHITRADURGA CITY

State	Karnataka
Location	Latitude: 14.23° N and Longitude: 76.4° E
Area	21.57 Sq.km
Elevation	732 m (2402 ft)
Population	Around 1,25,170 according to 2011 census.
Geography	Chitradurga is situated in a hilly region also known to experience wind currents throughout the year making it a suitable place to set up wind mills and wind farms.
Industries	Wind based power plants with a total installed capacity of 29.7 MW and comprise a total 18 Vestas 1.65 MW wind turbines supplied by Vestas Wind Technology India Pvt Ltd
Air Quality Stations	01, KSPCB Regional Office (SC-680)
Location of Chitradurga City	 

2. DETAILS OF NAMP STATIONS

The Ambient Air quality monitoring station existing in Chitradurga is located at KSPCB Regional Office (SC- 680). It comes under residential area. The monitoring of this station is carried out by KSPCB, the monitoring of pollutants is carried out for 24 hours (4 hourly sampling for gaseous pollutants and 8

hourly sampling for particulate matter) with a frequency of twice a week. The parameters monitored are Sulphur dioxide (SO_2), Nitrogen dioxide (NO_2) and Particulate Matter (PM_{10}).

3. DATA FOR AIR QUALITY INDEX (AQI) CALCULATION

The KSPCB on request has sent the NAMP station data for the month of December 2015. This data is used for preparing the AQI for this station. The parameters monitored at this station are Sulphur dioxide (SO_2), Nitrogen dioxide (NO_2) and Particulate Matter (PM_{10}). All three parameters are considered for calculation of AQI.

4. CALCULATION OF AIR QUALITY INDEX (AQI)

The AQI is calculated as following:

- The data received from the KSPCB was in 4 hourly concentration for SO_2 and NO_2 and 8 hourly for PM_{10} parameters. It was converted into 24 hourly average concentrations.

- The Sub-indices for individual pollutants are calculated using 24 hourly average concentration value and health breakpoint concentration range.

- The formula used for calculation of Sub-indices is:

  Ip= [{(IHI - ILO)/ (BHI -BLO)} * (Cp-BLO)] +ILO
  Where
  BHI = Breakpoint concentration greater or equal to given concentration
  BLO = Breakpoint concentration smaller or equal to given concentration
  IHI = AQI value corresponding to BHI
  ILO = AQI value corresponding to BLO; subtract one from ILO, if ILO is greater than 50

  AQI = Max (Ip) (where; p= 1, 2... n); denotes n pollutants

- The NAMP data received from the KSPCB was fed into the AQI calculator prepared in the Microsoft Excel sheet and the value of Sub-indices and AQI was calculated.

5. RESULT

Since manual stations measure PM_{10}, it is suggested that for manual station AQI for monitoring days can be calculated as long as PM_{10} or $PM_{2.5}$ is measured. It is suggested that for manual station, AQI is reported for at least three parameters and one of them should be PM_{10} or $PM_{2.5}$ possibly on a week basis.

AQI is calculated for the month of December 2015 for monitoring station at KSPCB Regional Office (SC-680)

KSPCB regional building (SC-680), December, 2015

AIR QUALITY INDEX (AQI)					
	SUB INDEX			AQI	
Date/Month	NO_2	SO_2	PM_{10}		
03-12-15	11	5	18	18	GOOD
07-12-15	11	5	26	26	GOOD
10-12-15	11	5	30	30	GOOD
14-12-15	11	5	30	30	GOOD
17-12-15	11	5	40	40	GOOD
19-12-15	11	5	38	38	GOOD
23-12-15	11	5	54	54	SATISFACTORY
28-12-15	11	5	42	42	GOOD

From the above interpretation of AQI for Chitradurga city, it can be seen that the air quality is falling under Good / Satisfactory category.