HISTORY OF VARANASI CITY

Varanasi is a very ancient city which has a continuous history since 1000 B.C. This is one of the holiest city of India which is a seat of learning, art and culture. The name Varanasi, according to the Vamon Purana, is located in between two rivers, the Varuna in the North and the Assi in the South on the bank of Ganga and from the combination of the names of the two streams Varanasi was derived. Such statements are also seen in "Kashi Mahatmya" in Padma Purana and in the Skand Purana also. The oldest name of Varanasi was Kashi deriving from its inhabitants known as Kashis which were the first Aryen settlers about 5000 years ago. Regarding this a statement meaning Varanasi city of the Kashis, can be seen in Das Kumar Charito. In Vayu Purana and in other great epic like Ramayan and Mahabharat some what similar statements and references are also found. In the fifth century A.D., Fa-Hian, a chinese traveller, who visited India made similar statements in his visiting report to India. The name Kashi is derived from the King Kasa, the seventh King of Manu dynasty and is a reputed seat of Aryen Philisophy and religion. About 650 B.C. Kashi was, however, annexed to the kingdom of Kosala and Rhys. Dravids mentions Kashi-Kosala as one of the 16th political division which was extended in India before the arival of Budha. Both Kashi as well as Kosala fell victim of the Magadh power at the instance of Chandr Gupta Maurya.
In the regime of Ashoka the Great (260 B.C. - 222 B.C.), Budhasim arose with, expention of many shrimes, memorials and monasteries.

Varanasi has attracted many Jain munis called Tirthankars out of which the 7th Tirthanker Known Suparsha was borned here itself and also Parshwanth the 23rd tirthankar was also born in the present Bhelupura ward of the city.

Jainism developed in Varanasi at the time of Parshwanath 8th century B.C. ago. Now Varanasi, has gain power and importance to became a city of social, cultural and religious activities.

The impulse for the religious and cultural activities have increased in Varanasi under the shadow of Hindi Monarchs with the arrival of Shankarcharya in the 8th century A.D.

Varanasi became famous not only for the scholarship in religion philosophy, medicine, music and art but also greatly enjoyed for its commercial and industrial activities. During pre-Budhist period, Varanasi become forms for perfume, sented oil and silk. But during Muslim regimes, Varanasi's culture and traditions had gone under continual humiliation and destruction with the attack of Mahmood Gazani and Aurangjeb under Mughal rule. Varanasi suffered much-more during the time of Muslim rule whom thousands of its temples were gutted down and many were converted into mosques, minarates and dargahs in their places. But its importance as a place of learning
and religion is maintained by many philosophers and reformers by their spiritual preaching of message of love and Devotion like Chaitanya Mahaprabhu, Ramanand, Valabhacharya, Kabir, Tulsidas etc.

With the advent of Marathas and Sikh power a decline in Mughal empire occurred and ultimately British rule was on scene. The rapid development with restoration of its temples and the establishment of its Ghats have occurred from the period of Maratha rulers. The Vishwanath temple which was affected by the attack of Aurangzeb was rebuilt by Rani Ahilya Bai of Indore in 1977.

Shikhs have established many "Gura Dwara" in the heart of the city and number of 'Akharas' came into existence in the city areas like Assi Ghat, Bhadani, Durga Kund, Mirghat etc.

Earlier the city was under the rulership of the Rajah of Banaras subject to the control of the British residence was brought under direct administration of the East-India company.

Many educational institution were developed by the government and other private organisations. In 1909, the Banaras Hindu University or Kashi Hindu Vishwa Vidyalaya was established by Pt. Madan Mohan Malviya of great National importance. The city landscape has changed considerably with the provision of water supply and construction of bridges like Malviya Bridge (formerly known as Dufferin Bridge Opened in 1887), over Ganga river on Varanasi and Mugalsarya route, connecting Rajghat and Parav areas and Varuna
Bridge over Varuna river. Britishers have developed Cantonment and civilline areas under their rule in further development of Varanasi (Prof. R.L. Singh and, Prof. A.k. Narain Sovenir, 1968).

In the independent India after British rule many developments have occurred in the educational field also like establishment of two more Universities, Kashi Vidyapeeth, and Sanskrit University. other colleges and schools.

An industrial area has developed with Diesel Locomotive Works nearby Lahartara.

Physical setup

Varanasi is an ancient city located at the latitude 25° 18' N and longitude 18° 1' E on the bank of river ganga and Varuna. The city is of high religious importance which attracted many to tourists from different parts of World including India to pay homage to Lord Shiva and Lord a Budha. Because of its ancient nature and over population in limited area the city has become a highly congested which shows many small lanes and that is why it is now becoming highly polluted city of India. This city is connected with all the major cities of India by rails and road routes. It is located at a distance of about 79 km from Delhi, 696 km from Kolkata, 1530 km from Mumbai, 301 km from Lucknow. Varanasi has a aerodrome at Babatpur, about 20 km to the North-West on Varanasi-Jaunpur road from where daily up and down flights go to different cities of India.
Climate

Varanasi is characterised by extreme climate showing a seasonal rhythm. The temperature, pressure, wind, rainfall and relative humidity show seasonal variation. A comparative study of weather of Varanasi which has been done on the basis of 1930-1945 and 1945-1960 data by I.M.D. Poona show finest weather in the month of January and February where mean monthly minimum temperature varies between 14°C to 16°C and monthly maximum temperature is 32.0°C (27°C in 1930-1945 and mean monthly 19.8°C in 1930-1945). But due to snowfall in the Himalayan range, the cold wind blowing down the planes, the temperature falls below 5.1°C (4°C in 1930-1945).

The relative humidity is maximum at 8:30 hrs. while minimum at 7:30 hrs. The temperature rises from March onward and reaches maximum in May. The temperature goes over 42°C (40°C in 1930-1945) and during middays it passes even over 44.9°C (44°C 1930-1945) and even up to 48°C (in 2000-2001) in peak summer months May and middle of June. The mean monthly temperature in March is 32°C with the blowing of storm and scorching hot winds locally called "LOO" continuously blowing from north-East and East at 8:30 hrs. while South-West and West 11:30 hrs. till the advent of summer monsoon. The rainy monsoon season generally comes in later part of June after 15th during hot weather, the humidity is not much but during monsoon period i.e. in the month of July, August and September, high humidity
Table- 1 Showing Monthly Average of Temperature Rainfall and Relative Humidity of Varanasi City (July 1999 – June 2000)

<table>
<thead>
<tr>
<th>Month July 1999-2000</th>
<th>Temperature (°C)</th>
<th>Total Rain Fall (mm)</th>
<th>Relative Humidity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum</td>
<td>Minimum</td>
<td>Maximum</td>
</tr>
<tr>
<td>July 1999</td>
<td>35.98</td>
<td>27.92</td>
<td>289.01</td>
</tr>
<tr>
<td>AUG</td>
<td>35.01</td>
<td>24.51</td>
<td>382.91</td>
</tr>
<tr>
<td>SEP</td>
<td>34.68</td>
<td>21.05</td>
<td>295.05</td>
</tr>
<tr>
<td>OCT</td>
<td>31.81</td>
<td>19.85</td>
<td>98.02</td>
</tr>
<tr>
<td>NOV</td>
<td>24.09</td>
<td>18.05</td>
<td>4.51</td>
</tr>
<tr>
<td>DEC</td>
<td>22.81</td>
<td>6.58</td>
<td>-</td>
</tr>
<tr>
<td>JAN 2000</td>
<td>26.15</td>
<td>11.78</td>
<td>1.86</td>
</tr>
<tr>
<td>FEB</td>
<td>27.98</td>
<td>12.56</td>
<td>-</td>
</tr>
<tr>
<td>MAR</td>
<td>30.50</td>
<td>13.01</td>
<td>-</td>
</tr>
<tr>
<td>APR</td>
<td>31.08</td>
<td>18.51</td>
<td>-</td>
</tr>
<tr>
<td>MAY</td>
<td>38.56</td>
<td>23.08</td>
<td>2.56</td>
</tr>
<tr>
<td>JUN 2000</td>
<td>46.27</td>
<td>26.97</td>
<td>30.78</td>
</tr>
</tbody>
</table>

Sources – Department of Meteorology B.H.U. Varanasi
is observed and mean monthly temperature falls below 33.7°C in June (32°C 1930-1945) but it remains above 29°C till the middle of September. (37°C 1930-1945).

The monsoon season ends by the end of September with the fall of temperature, which is pronounced after middle of October. Days are warmer than night. Relative humidity is much more during winter season i.e. above 75 in October, from November on ward the mean monthly temperature falls below 21°C (20°C 1930-1945).

The normal annual rain fall at Varanasi is 1113.4 mm (1014 mm in 1930-1945). The 1948 which was wettest year when the rain fall was 2108.5 mm and the driest year 1957 being 445.8 mm (in 1864, 485 mm).

Aforesaid studies indicate that the temperature of Varansi is rising day by day due to population explosion and more CO2 production by human being with the more use of automobiles domestic coal, fire wood and generators. Following table (1) showing monthly average of temperature, rainfall and relative humidity of Varanasi from July 1999 to June 2000.

**Population and literacy of Varanasi City**

The growth of population in Varanasi depends more on the resources consumption, traffic congestion, housing, crimes and other social tensions. The population remain more or less at the static level

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Population</th>
<th>Males</th>
<th>Females</th>
<th>Decade Variation</th>
<th>%age of Decade Variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td>3,41,923</td>
<td>1,86,546</td>
<td>1,55,378</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1961</td>
<td>4,71,258</td>
<td>2,57,831</td>
<td>2,13,417</td>
<td>1,29,335</td>
<td>37.825</td>
</tr>
<tr>
<td>1971</td>
<td>5,83,856</td>
<td>3,17,402</td>
<td>2,66,454</td>
<td>1,12,598</td>
<td>23.89</td>
</tr>
<tr>
<td>1981</td>
<td>7,16,779</td>
<td>3,85,731</td>
<td>3,31,043</td>
<td>1,32,923</td>
<td>22.77</td>
</tr>
<tr>
<td>1991</td>
<td>9,20,202</td>
<td>4,93,266</td>
<td>4,26,936</td>
<td>2,03,423</td>
<td>28.38</td>
</tr>
<tr>
<td>2001</td>
<td>12,68,522</td>
<td>6,75,084</td>
<td>5,93,438</td>
<td>3,48,320</td>
<td>37.85</td>
</tr>
</tbody>
</table>

Source- Census of Varanasi.
before 1931 and a decline of the population is observed from 1901-1921 because of the more death rate than the birth rate due to many epidemic diseases such as plague, cholera, influenza and small pox. The population has also declined due to famines and during 1907-1908 and 1913-1914 and from influenza epidemic during 1918-1919 but in the last eight decades, a rapid increase of population has occurred due to more birth and resultant influx of immigrant from neighboring areas. Due to population explosion and more urbanization, the area of Varanasi in square kilometer (km²) has increased from 1901 to 2002. In 1901, Varanasi area was 22.10 sq. km. To 73.82 sq. km. In 1951 urban population of Varanasi was 3,41,923 in 1971 as reported in census of Varanasi India, which has further increased to 12,68,522 in 2001. The rural population of Varanasi is 18,79,405 in 2001. In 1991, this area has gone up 234.3 sq. km. with further increase in population. Due to more birth and less death rate, population explosion has occurred. The city area has further increased to accommodate the living population.

The total male population of Varanasi district in about 16,50,138, where as the female population is about 14,97,749. The total number of children upto the age of 6 years are 5,52,541 when boys are 2,88,539 and girls are 2,64,002. The rural population of male is 9,75,054 and female is 9,04,351 whereas urban male population is 6,75,084 and female 5,93,438. The no. of children upto the age of 6 years in the rural population is 3,71,040 and urban
population is 181501 where rural male population is 1,93,322 and female population is 1,77,618. Like wise, the urban children male population upto the age of 6 years is 95,217 and female population is 86,284.

The total literate population of Varanasi is about 17,32,531 where rural literacy is about 9,58,033 and urban literacy is about 7,74,798. The total no. of male which are literate is about 11,39,409 where as female literacy is about 5,93,122. Here rural male literacy is about 6,17,284 where as female literacy is about 3,40,749 and the urban total male literacy is about 5,22,125 where as urban female literacy is 2,52,673. (Data obtained from website www.nic.in.2002). The following tables indicates the a foresaid details of population in both urban and rural area of Varanasi district inducing literacy rate in the population.

Total Population of Varanasi = 31,47,927 [Male = 16,50,138 - Female= 14,97,749.

No. of children upto the age of 6 years= 5,52,541,Boys= 2,88,539, Girls= 2,64,002]

<table>
<thead>
<tr>
<th>Urban - Total</th>
<th>Rural Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1268522</td>
<td>1879405</td>
</tr>
<tr>
<td>Male = 675085</td>
<td>Male = 975054</td>
</tr>
<tr>
<td>Female = 593438</td>
<td>Female = 904351</td>
</tr>
<tr>
<td>No. of children T = 181501</td>
<td>No. of children Total = 371040</td>
</tr>
</tbody>
</table>
Boys = 95217    Boys = 193322
Girls = 86284   Girls = 177618
(Source - web site www.nic.in)
Total Literacy of Varanasi = 1732531
Male = 1139409
Female = 593122
Urban
Total = 774798
Male = 522125
Female = 252673
Rural
Total = 958033
Male = 617284
Female = 340749
(Source - web site www.nic.in)

Now it has gone beyond trans Varuna region, developing more slum areas, in this area, as well as, the surrounding area of city. Many new colonies have been established causing pollution of air, water soil and noise and spreading many infections diseases causing high mortality rate.

It is very difficult to compare poverty in different countries because different countries have different definitions of poverty. The following graph shows the International poverty as well as both the population percentage below National poverty line and that living
below and International poverty line of less than US per day. India's National poverty line lies 35 percent of population living below poverty line as compare to International poverty line 44.2 percent (World Statistics, 2002a).

The standard of health care and more general factor such as access to clean drinking water, adequate food and effective sanitation etc. are reflected from the countries infant mortality rate. In India number of infant deaths per thousands live (World Statistics, 2002b).

Due to increasing urbanization i.e. expanding of city, valuable large trees are cut day by day and more agricultural land are being utilize not for agricultural purposes but for developing new colonies has caused lesser amount of rain fall and increase in temperature, warming of atmosphere has occurred which has become a climatic threat for the inhabiting population of Varanasi.

The visibility is more during summer months particularly March and April but less during winter months due to presence of fog, smog or mist.

**Study Sites**

The following sites have been selected for present investigation to study the environmental contamination of different pollutants in trans Varuna area of Varanasi.

**Site I - (Rameshwar - Pilgrimage Area)**- The river Varuna
Plate No. V

Fig. 9– Study Site IV- Alaipur Area Showing Closely Situated Houses in a Narrow Lane.

Fig. 10– Study Site IV–Near Rajghat Area Showing Confluent Belt of Varuna and Ganga Rivers.
Plate No. IV

Fig. 7- Study Site III- Showing Heavy Traffic in Varanasi Cantt. Area.

Fig. 8- Study Site II-Chaukaghat Bridge Giving Glimpses of Stagnant Varuna River Water Which is Highly Polluted.
enters in Varanasi city via Rameshwar site which is the upstream point of this river and is a well-known pilgrimage spot. This is a small village area showing lot of greenery, not much population as well as well-developed constructed buildings. Here traffic density is of lower order producing less amount of noise. The river water is little bit clean in nature. So this site is supposed to be almost free from biotic stress and is considered as a control site.

**Site - II (Shivpur - Pandeypur)** - This include Shivpur bypass & Shivpur market which enters into Gilat Bazar which in turn continuous through Bhojubeer area which is a near by site of Varuna river.

Bhojubeer bifurcate into different roads, where are road is connected to Pandeypur via Ordely Bazar and Police line and the other road goes to Varuna Bridge via Katchchary. The Varuna bridge is located on the upstream site of Varanasi city which is under heavy biotic stress due to washing and bathing activities besides these many effluents from different industries including heavy metals and domestic wastes possessing pesticides are discharged. These are thickly populated and heavy traffic zones, showing much air and noise pollution also. In these areas power supply is not adequate.

**Site - III (Cant - Chauka Ghat)** - This site include Varanasi Cant, Andhrapul and Chauka Ghat areas. After flowing through Rameshwar river Varuna reaches Chauka Ghat where lot of local
Plate No. III

Fig. 5- Study Site II- Varuna Bridge Area Showing Dumping of Solid Wastes.

Fig. 6- Study Site II- Pandeypur Crossing Showing Heterogeneous Traffic.
Plate No. II

Fig. 3- Showing Varuna River flowing through Rameshwar Bridge at Study Site I - Rameshwar.

Fig. 4- A Portion of Village Area of Study Site I (Rameshwar) along with a Chimney Producing Air Pollutants.
sewage wastes and effluent of smaller industries are being discharged into the river causing water pollution. In the nearby areas of Chauka Ghats particularly Cant and Andhrapur are the sites of heavy traffic zones, creating air and noise pollution.

**Site - IV - (Alaipur - Rajghat)** - The Alaipur is a nearby area of river Varuna which is thickly polluted slum area. The Rajghat is a site of confluence point of river Ganga and its tributary Varuna which is the downstream site. Here effluents of industries and domestic sewage are being continuously discharged into the river. On one side of the road connecting Alaipur and Rajghat before Vasanta College, the low land is being filled with garbage of city since last seven to eight years, creating nuisance health hazard to common public.