CHAPTER 4

General Methodology

4.1 Data used

Satellite Data

- IRS-1D LISS III Feb 2001
- Landsat TM April 1986

Ancillary Data

- Toposheet number 53J/7 and 53J/8 (for reference only)
- Magnetic compass
- Field Performa/Questionnaires
- Weighing machine for measuring fuel load measurements
- Census 1991, from the respective block offices.

4.2 Hardware

For the present study the image processing was carried out in a system with Pentium III Processor, 128 MB RAM and 24-bit graphic windows acceleration board with resolution of 1024x768.

4.3 Software

- ERDAS IMAGINE 8.4
• ARCVIEW 3.1
• ARC/INFO 8.0
• ARC GIS
• MS Office 2000

4.4 Data Processing

4.4.1 Radiometric Correction: First order corrections were done by dark pixel substraction technique (Lillesand & kiefer, 2000). This technique assumes that there is a high probability that there are at least a few pixels within an image that should be black (0 %reflectance). However, because of atmospheric scattering, the image system records a non-zero DN value at the supposedly dark-shadowed pixel location. This represents the DN value that must be subtracted from the particular spectral band to remove the first order scattering component.

4.4.2 Geometric correction: Images were georeferenced and registered geometrically using topographic sheets on 1:50,000 scale. The uniformly distributed ground control points (GCPs) were marked with root mean square error of one pixel and the image was resampled by cubic convolution method. Since the area was spread
over two toposheets, mosaicing was done in ERDAS IMAGINE 8.5 after registering the two images with each other.

4.4.3 Preparation of base maps: Base maps including road, settlement, village, drainage, contour, and watershed boundary were prepared with the help of topographic sheets 53J/7 and 53J/8. Data inputting was done through head-on digitizing in ArcView 3.2a.

Land use / Land cover maps were prepared first. (Fig.2)

General methodology followed for vulnerability analysis is shown in Figure 3.