EXECUTIVE SUMMARY

Hydrological studies are generally carried out on basin scale. In order to develop the methodologies for providing solutions for understanding and solving various hydrological problems, a research project ***"Comprehensive Hydrological Studies for Narmada River Basin"*** was taken up by the Institute. In this project the hydrological, hydrometeorlogical and other related data were collected from various State and Central Government organizations. A list of major organisations from whom data and other relevant information were collected is given in Appendix III. The National Institute of Hydrology is thankful to all these organisations for providing the required data, etc. for carrying out these studies. Based on these studies, a number of reports and research papers have been brought out/published by the Scientists and Scientific staff of the Institute. A list of these reports and papers alongwith their authorship is given in Appendix I & II of this report.

In this report, an attempt has been made to summarise the conclusions and recommendations of the various hydrological studies carried out by NIH for the Narmada river basin covering following aspects:

1. Data processing and analysis
2. Small catchment hydrological studies
3. Hydrological modeling
4. Design flood studies
5. Reservoir operation studies
6. Dam break studies
7. Application of remote sensing, geographical information system (GIS) and geomorphology
8. Ground water analysis and modeling including waterlogging and drainage studies
9. Water quality studies
10. Field and laboratory investigation studies
11. Drought studies and lowflow modelling and forecasting

I am sure that the results obtained in the studies carried out by the Institute would be found useful not only for the field engineers involved in the water resources development of the Narmada river basin but also to planners and engineers involved in planning, designing and operation of the water resources projects in other river basins and regions of the country. There is a need to take up studies on similar lines for other river basins located in different regions of the country in order to standardize the methodologies.

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