PREFACE

Hydrological Analysis is the most important component of the planning process for any water resources development scheme. As a matter of fact, the hydrological studies are required at all the stages of the water resources project viz, a) at pre-feasibility stage; b) for preparation of feasibility report; c) in planning & design of the project; d) during execution of the project; and f) for operation & maintenance of the project. The reasonable estimate of the available water resources of the river at different points is the basic information required at pre-feasibility stage. Once the project is identified, first and the most important step in the planning is to have an accurate estimate of the available water resources, its time distribution both on long term and short term basis, as well as other important features such as extreme values of discharges and critical time periods both for the high flow and lowflow conditions.

In case of a unrealistic estimate of the water resources the project may become a curse rather than a boon. A higher estimate of the available water resources may lead to future problems and the project may not fulfill its envisaged objectives. This will also lead to a higher estimate of cost of the project. On the other hand a lower estimate of the water resources may, many a times render the project unfeasible & the scarce water resources may not be utilised efficiently.

A very important component of the hydrological studies is the estimation of design flood, which is basis for the design of the structures of different type. The proper selection of a design flood value is of great importance. A higher design flood value, obviously, means a costly structure. On the other hand, the choice of a relatively low value of the design flood may be risky.

It is therefore essential to have a thorough knowledge of the methods for the observation of rainfall, discharge, sediment & other related data as well as the methodology for processing and analysis of the same to arrive at accurate estimate of the hydrological parameters necessary for decision making in project planning, design and operation.

The objective of the Regional Course on PROJECT HYDROLOGY is to acquaint the in-service engineers with the various hydrological analysis techniques which are essential requirement for planning and operation of water resources project. It is expected that this course material, would not only be used during the course but also during professional activities in their organisation for hydrological analysis and design.

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