INTRODUCTION

1.1 GENERAL

Most of the major rivers in India are interstate in character having catchment in two or more states. Considerable confusion prevails in respect of what should, or should not, be done in respect of an interstate river by the central government or by the governments of different states through which the river flows. This confusion gives rise to the disputes at the time of apportionment of the waters of these rivers. Section 2(c) of Indian Interstate Water Disputes Act, 1956 [24] defines the interstate water dispute as a dispute or difference between two or more state governments with respect to the use, distribution or control of the waters of, or in, any interstate river or river valley or the interpretation of the terms of any agreement relating to the use, distribution or control of such waters or the implementation of such agreement or the levy of the water rate in contravention of the prohibition contained in section 7.

1.2. STATEMENT OF THE PROBLEM

There are various aspects of an interstate river water dispute viz. legal, political and engineering. Resolving these disputes with reference to the engineering aspects, three most important points during the apportionment of
waters of a river to be considered are:

(i) What is the availability of water?
(ii) What are the requirements of the partner states?
(iii) What should be the basis of the apportionment of the available water?

In the absence of any clear solution for these points, the inter-state river water disputes already complicated by the politico-legal arguments get more complicated. What great loss these disputes cause to the nation can be gauged from the fact that due to non-resolution of Ravi-Beas dispute, the SYL canal which was initially to cost around Rs. 200 Crores now will cost more than Rs. 600 Crores on completion, besides the indirect losses already accrued or likely to accrue.

1.2.1 AVAILABILITY OF WATER

The volume of water flowing in any river is not a constant quantity but varies from year to year. The riparian states try to project the figure of availability suiting their own interests. But by taking a high volume of water as the basis for apportionment, the upstream states will be favoured as against a lower state in the years when the actual flow is less than the volume used as the basis for apportionment. Also, taking a high value of availability amounts to unnecessary wastage of public money; whereas by taking a low value, valueable water-
resources of the country go waste.

At present there are three generally accepted modes of assessing the availability. First mode is by adopting a suitable dependability of the flow. The Narmada Water Disputes Tribunal adopted the 75% dependable flow of river Narmada as the figure of availability. The second mode is assuming an average figure of some length of flow-series. The Ravi-Beas Waters Tribunal adopted the figure by taking an average of 40 years long flow-series (1921-60). The third mode is to arrive at a figure by an agreement between the partner states. The Godavari Water Disputes Tribunal, allocated the available supplies to the concerned states on the basis of agreements reached between the concerned states from time to time. The Krishna Water Disputes Tribunal adopted the 75% dependable flow of the Krishna river as figure of availability, which was mutually agreed to by the partner states before-hand and was intimated to the Tribunal. There is no uniformity of views of various Tribunals in adopting a suitable figure of dependability of river flow and there is no standard for taking a particular length of flow-series.

1.2.2. REQUIREMENTS OF PARTNER STATES

During the process of apportionment of waters of an inter-state river, the party states submit their claims before the adjudicator regarding their water requirements. These claims far exceed the availability of waters. Before
the Narmada Water Disputes Tribunal, the two partner states Madhya Pradesh and Gujarat claimed that their requirements of water were 24.08 and 23.22 m.a.f. respectively. The total requirements of these states i.e. 47.30 m.a.f. far exceeded the availability of 27.25 m.a.f. The Ravi and Beas Waters Tribunal calculated the requirements of the states as 46.65 m.a.f., as against the availability of water as 21.69 m.a.f. The Krishna Water Disputes Tribunal summed up the requirements of Maharashtra (941.5 TMC), the then State of Mysore (1430 TMC) and Andhra Pradesh (2008 TMC) at 4379.5 TMC, against the availability of 2060 TMC. Thus, it becomes desirable to evolve a methodology to calculate the true requirements of states.

Carr and Underhill [11] have shown that there are several variables which are to be considered in the assessment of water requirements of an area. These variables are the areas proposed to be irrigated, climate, effective rainfall available for crops proposed, consumptive use of water, evaporation data-evapotranspiration, crops coefficient and other relevant factors, intensity of irrigation suggested, net culturable command areas of major, medium and minor projects, the chemical and physical qualities of soils and their suitability for proposed or modified crop pattern. In inter-state water disputes, the areas under consideration are so vast and different quantitatively that it is not always possible to develop a suitable model as suggested by Carr and Underhill.
Ravi and Beas Waters Tribunal calculated the requirements of party states on the basis of culturable areas of the states for 75% intensity and 3.3 cusecs per thousand acres water-allowance at canal head. Naramada Water Disputes Tribunal calculated the water requirement of Madhya Pradesh for major projects with intensity of irrigation 135% & delta at canal head 2.57 ft; for medium projects with intensity of irrigation 90% & delta at canal head 2.07 ft; for minor projects with intensity of irrigation 75% & delta at canal head 1.89 ft; for micro-minor projects with intensity of irrigation as 75% & delta at canal head 1.50 ft. and for pumping with intensity of irrigation 120% & delta at canal head 2.56 ft. The requirement of Gujarat's CCA was calculated with intensity of irrigation as 85% and delta at canal head as 2.57 ft. Krishna Water Dispute Tribunal considered each scheme separately, and based on empirical examination of various factors responsible for demand, calculated the utilisation and allocated the water accordingly. Godavari Water Disputes Tribunal resolved the disputes on the basis of settlement reached between party states through negotiations.

In the absence of any criteria for calculation of water requirements, the disputes, instead of being resolved get more complicated. However, an empirical examination of the components of water requirement is possible in choosing suitable parameters.
1.2.3. CRITERIA FOR APPORTIONMENT

There is no clear legislation to provide for the basis of allocation of water between the partner States.

Smith [62] with the study of such evidences as were available to him, said that every river system is naturally an indivisible physical unit, and that as such it should be so developed as to render the greatest possible service to the whole human community which it serves, whether or not that community is divided into two or more political jurisdictions.

Studying the practice of distribution of water of inter-states rivers, the Indus Commission found that the most satisfactory settlement of disputes of this kind is by agreement, the parties adopting the same technical solution of each problem as if they were a single community undivided by the political or administrative frontiers. Once there is such an agreement, that in itself furnishes the 'law' governing the rights of the several parties until a new agreement is concluded. If there is no such agreement, the rights of the parties must be determined by applying the rule of 'equitable apportionment'.

Leading principles established by decision of U.S. Supreme Court, given in the report of U.S. National Reclamation Association in respect of the waters of inter-states rivers can be summed up as- there must be an equitable limit to conflicting sovereignties and an apportionment not of
water, but of natural benefits. Determination of the relative rights of contending states in respect of the use of streams flowing through them does not depend upon the same considerations and is not governed by the same rules of law that are applied in such states for the solution of similar question of private right. Upon the consideration of pertinent laws of the contending states and all other relevant facts, the court will determine what constitutes equitable apportionment. Existing economic development shall be protected and preserved, wherever possible, in arriving at an equitable apportionment. The determination of equitable apportionment of inter-state waters will impose the rule that conservation within practicable limits is essential in order to conserve the common supply. Many factors may be involved in the determination of equitable apportionment of the waters of an inter-state stream to which the U.S. Supreme Court announced no specific formula. Each case is to considered on the basis of the facts involved.

F.J. Berber [8] points out four alternative principles for the use of waters flowing through more than one independent state. These principles are- the principle of absolute territorial sovereignty, by virtue of which a state can dispose freely of the waters flowing through its territory; the principle of absolute territorial integrity, by virtue of which a state has a right to demand the continuation of the natural flow of waters coming from other countries;
the principle of community in the waters, by virtue of which the rights in waters are either vested in the collective body of riparians or are divided proportionally, no one state can dispose of the waters without the positive cooperation of the others; a restriction of the free usage of the water which does not extend as far as the principle of community in the waters but which in differing degrees restricts both the principles of absolute territorial sovereignty and the principle of absolute territorial integrity. The first principle favours the upstream riparian state whereas the second principle favours the downstream state. The third principle is well known in municipal water rights, as it is the legal principle most appropriate to a fully developed community. The fourth principle is modification of the third, suitable for a less advanced level of international integration.

According to the Helsinki Rules [20], framed by the International Law Association in 1966, each basin state is entitled within its territory, to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin; reasonable and equitable share, as mentioned above, is to be determined after considering the following relevant factors i.e. the geography of the basin, including in particular the extent of the drainage area in the territory of each basin state; the hydrology of the basin, including in particular the contribution of water by each basin state, the climate affecting the
basin, the past utilisation of the waters of the basin, including in particular existing utilisation, the economic and social needs of each basin state, the population dependent on the waters of the basin in each basin state, the comparative costs of alternative means of satisfying the economic and social needs of each basin state, the availability of other resources, the avoidance of unnecessary waste in the utilisation of waters of the basin, the practicability of compensation to one or more of the co-basin states as a means of adjusting conflicts among uses and the degree to which the needs of a basin state may be satisfied, without causing substantial injury to a co-basin state. The weightage to be given to each of the above-mentioned factor is to be determined by its importance in comparison with other relevant factors. In determining what is a reasonable and equitable share, all relevant factors are to be considered together and a conclusion reached on the basis of the whole. A use or category of uses is not entitled to any inherent preference over any other use or category of uses. A basin state may not be denied the present reasonable use of the water of international drainage basin to reserve for a co-basin state a future use of such waters. An existing reasonable use may continue in operation unless the factors justifying its continuance are outweighed by other factors leading to the conclusion that it be modified or terminated so as to accommodate a competing incompatible use.
Jeorme Lipper [30] mentioned that the law of International rivers is presently in its infancy. In the area of equitable utilisation the rules are so flexible and general that it would be argued that they seem more like guides than regulations.

The McDonald Plan [61], prepared by a British firm for development in respect of Jordan River passing through four countries – Lebanon, Syria, Jordan and Israel gave the principle that the waters in a catchment area should not be diverted outside that area unless requirements of all those who use or genuinely intend to use the waters within the area have been satisfied. In the revised plan prepared on the basis of report of Tennessee Valley Authority (TVA), it was stated that the reasonable needs of all in-basin users in the riparians states must be provided for before out-of basin uses can be considered and that the Israel share could be used legitimately either in or out of the basin.

According to Gulhati [19] neither the Indian constitution nor the Inter-State Water Dispute Act lays down or gives any indication of principles which should govern the relative rights of basin states on the water of an inter-state river other than the equality of basin states.

For developments from the Sutlej tributary of the Indus system, the principles that the waters of river should for the greatest good of the greatest number, irrespective
of territorial boundaries, was applied.

Narmada Water Disputes Tribunal [51] proceeded to apportion the river waters on the principle of equitable utilisation.

Krishna Water Disputes Tribunal [50] in its report observed that there is no mechanical formula of equitable apportionment applicable to all rivers.

Ravi and Beas Waters Tribunal [53] in its Report mentioned that quantitative apportionment of the available supplies is the most appropriate alternative, since the demand for water made by the contesting parties is equally pressing and all the potential claims have to be accommodated in the available resources position.

On the river Cauvery [23], the law of riparian rights was enforced and the lower riparian state has been exercising powers of veto over developments in the upper riparian state.

With so many principles and such a large variation in the areas of application, it is not clear as to which principle is to be applied or is most suitable to Indian conditions.

1.3 OBJECTIVES OF THE PRESENT STUDY

The present study aims at providing a suitable answer to the three important points, mentioned in para 1.2, during the apportionment of waters in an inter-state river water dispute. The following objectives are to be achieved:-
(i) To set a criteria for determining the availability of waters of an interstate river. For this purpose suitable length of the flow-series and dependability of the river flows is to be determined.

(ii) To set a criteria for determining the requirements of the partner states.

(iii) To bring out a principle for apportionment of interstate river waters most suitable to Indian conditions.

1.4 PROLOGUE

The presentation of study has been arranged as follows:

Chapter 1: This chapter gives the introduction of the topic, need for such study and a brief outline of the present procedures being adopted in interstate river water disputes.

Chapter 2: This chapter is devoted to the review of available literature along with review of Indian and international laws on the subject. The principles at international level and mechanism available for sorting out interstate river water disputes in India have also been studied under this chapter.

Chapter 3: In this chapter all the main interstate river water disputes of India have been studied. These disputes had been referred to different water disputes tribunals at one or other time. The main points of disputes and the decisions by the tribunals are given.
Chapter 4: This chapter details the studies carried out to set the criteria for finding out the availability of waters of interstate river. The criteria for calculating the requirements of partner states has also been evolved and studied for the Haryana state. A principle of apportionment of the available waters most suitable to the Indian conditions has also been suggested.

Chapter 5: In this chapter conclusions of the present study have been given.