River water sharing: India’s problems

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Abstract While India came to an agreement with Pakistan, Nepal and Bangladesh to share and utilize the waters of rivers that originate in those countries or pass through them, the sharing of the waters of inter-state rivers has caused severe problems. The Yamuna and the Brahmaputra in the north and the Godavari, the Krishna, and the Kaveri in the south are the main rivers concerned. Under the Indian Constitution, water is a state subject and the Central Government’s role is in the form of overall policy formulation, coordination, guidance and general infrastructural, technical and research support. Sharing of the waters of the Krishna, Godavari and Narmada rivers by the states concerned has been decided by tribunals under the Inter-State Waters Disputes Act, 1956. The Ravi and Beas Water Tribunal decided how to apportion the waters of these rivers in 1987. The states concerned have disagreed in their interpretation and implementation of the decisions made by the tribunals, leading to much acrimony and unpleasantness, which made it necessary to involve the Supreme Court of India itself.

Key words river water allocation; Narmada; Krishna; Godavari; Kaveri; Bachawat award; Alamatti dam; India

INTRODUCTION

There are 14 major river basins in India, each having a basin area of 20 000 km$^2$ or more. Three of the basins: the Indus, the Ganga and the Brahmaputra are north of the Tropic of Cancer and 20° latitude; and four: the Godavari, the Krishna, the Pennar, and the Kaveri are in peninsular India. There are 44 “medium” rivers with a basin area between 2000 and 20 000 km$^2$, and the remaining “minor” rivers with basins less than 2000 km$^2$ are mostly in the east and west coastal areas (Fig. 1). The Himalayan rivers are fed by the snows and glaciers of the Great Himalayan ranges and are thus perennial. They are laden with heavy silt and are prone to change their courses. The peninsular rivers are dependent on the southwest monsoon whose failure can lead to a serious drought situation in their regions. They mostly originate in the Western Ghats and invariably flow through two or three states. The sharing of their waters has led to serious conflicts between the upper and lower riparian states, apart from the fact that within the states themselves disputes have arisen on the utilization of the waters. The problems are regional, social and economic. They become political if the states involved are ruled by different political parties and this makes solving the disputes all the more difficult.

CRITERIA FOR WATER ALLOCATION

When allocating water between the states, the following criteria have been considered:
(a) the geography of the river basin, in particular, the extent of the basin area in the
territory of each state,
(b) the hydrology of the basin including the contribution of water by each state to the
river,
(c) the climate affecting the basin,
(d) past utilization of the waters of the basin as well as existing utilization,
(e) the economic and social needs of each basin state,
(f) the population of each state dependent on the waters of the basin,
(g) the comparative costs of alternative means of satisfying the economic and social
needs of each state,
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(h) the availability of other resources,
(i) the avoidance of unnecessary waste in the utilization of the waters of the basin,
(j) the practicability of compensation to one or more of the states sharing the basin as a means of adjusting conflicts among users, and
(k) the degree to which the needs of a state may be satisfied without causing substantial injury to another state sharing the same basin.

These criteria were framed at the 52nd Conference of the International Law Association in 1966 at Helsinki (Rao, 1975). These criteria may not be applicable in India where irrigation needs are most important. In addition, the following factors may be taken into consideration:

(a) the existing uses of waters may be many years or decades old,
(b) farmers of large unirrigated tracts, specially in the upper reaches of rivers have become irrigation conscious and want water for irrigation purposes, and
(c) even when the shares are decided, there could be considerable difficulty in implementing any decision; and, when water is to be shared between upper and lower riparian states, how will the water be regulated (Rao, 1975)?

INTER-STATE DISTRIBUTION OF SOME RIVER WATERS

Waters of the Sutlej, Beas and Ravi

The waters of the Sutlej were earmarked for areas to be served by the Bhakra project and are shared between Punjab and Rajasthan under the terms of the Bhakra Nangal agreement, with Kashmir being allocated a share following the pre-partition uses. The allocation is as follows:

<table>
<thead>
<tr>
<th>State</th>
<th>Water (million m$^3$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kashmir</td>
<td>801</td>
</tr>
<tr>
<td>Punjab</td>
<td>8878</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>9864</td>
</tr>
</tbody>
</table>

Narmada waters

The Narmada passes through the states of Madhya Pradesh, Maharashtra and Gujarat and its basin areas in them are respectively 87, 1.5 and 11.5%. An agreement was signed in 1963 between Gujarat and with respect to three projects, but Madhya Pradesh did not ratify the agreement, whereupon the Khosia Committee made recommendations which were, however, not accepted by Madhya Pradesh and Maharashtra. A tribunal with three judges was constituted in 1969 to consider the matter. But in 1970 an agreement was signed while this case was going on apportioning 617 and 112 million m$^3$ of water to Rajasthan and Maharashtra, respectively, even though Rajasthan was not a riparian state. Dams being built on this river have now become controversial because of the problem of rehabilitating displaced inhabitants from the areas that would be submerged after their construction. The publication by World Bank and IUCN (1997)—*Large Dams: Learning from the Past, Looking at the Future*, was an outcome of this problem.
The Krishna waters

The Planning Commission of the Government of India distributed the Krishna waters between Maharashtra, Karnataka and Andhra Pradesh, but Karnataka did not ratify the agreement as it claimed additional waters should be allocated for existing works. A Commission calculated the total average yield of the river to be 62,785 million m$^3$ and the Union Ministry of Irrigation and Power made an interim allocation in 1963: Maharashtra getting 11,328 million m$^3$, Karnataka 16,992 million m$^3$, and Andhra Pradesh 22,656 million m$^3$. Maharashtra and Karnataka wanted the matter to be referred to a tribunal under the Inter-state Water Disputes Act of 1956. The assessment of the tribunal in December 1973 was that the dependable 75% flow was 58,333 million m$^3$ and awarded 16,000 and 19,680 million m$^3$, respectively, to Maharashtra and Karnataka, inclusive of evaporation losses, unlike the interim allocation in 1963. This Bachawat award as it was called consisted of two parts: Under Scheme A, Maharashtra, Karnataka and Andhra Pradesh got 560, 700 and 800 x 10$^9$ m$^3$ of water, respectively. Maharashtra and Karnataka were restrained by the tribunal from using waters in excess of their shares. According to the suit Andhra Pradesh was permitted the "liberty to use" the remaining waters within the allocation of 2060 x 10$^9$ m$^3$ without acquiring a right to use waters in excess of 800 x 10$^9$ m$^3$. The "surplus water" of 330 x 10$^9$ m$^3$ was allocated among the basin states under Scheme B which gave 25, 50 and 25%, respectively, to Maharashtra, Karnataka and Andhra Pradesh. The tribunal made Scheme A allocations self-executing, but the implementation of Scheme B (surplus 330 x 10$^9$ m$^3$) was left to the good sense and consent of the parties concerned and to the wisdom of Parliament. This award of 1973 was gazetted (i.e. published in the gazette, an official publication) as far as the scheme A was concerned by the Central Government on 31 May 1976 while Scheme B was not as Andhra Pradesh objected to the proposal to create a Krishna Valley Authority. Any review of this award was to be made only after 31 May 2000. The entire issue was raised again when Karnataka wanted to raise the height of the Alamatti dam to full reservoir level (524.256 m) to which Andhra Pradesh objected and went to the Supreme Court of India which ruled that it Karnataka could raise the height of dam to 519.6 m subject to appropriate clearances including environmental clearance from the central authorities concerned. The constitution bench that gave this ruling held that Scheme B of the Bachawat award was not a "decision" of the tribunal and, therefore, could not be implemented under the relevant provisions of the Inter-state Waters Dispute (ISWD) Act, 1956. Karnataka has gone ahead with the work after this verdict of April 2000, while Andhra Pradesh seems to be satisfied with the verdict as the original request of Karnataka was not allowed! The bench has, however, left the final decision on sharing surplus waters to the new tribunal to be set up by the Central Government.

The Godavari waters

This is the largest perennial river in peninsular India and flows through Maharashtra, Madhya Pradesh, Orissa, Karnataka and Andhra Pradesh; its tributaries flowing from Madhya Pradesh and Orissa contribute a considerable quantity of water. Its waters were little used until Sir Arthur Cotton constructed an anicut (an engineering structure,
a miniature dam, generally across a river, with mechanism to close or open the sluices for regulated supply of water) at Dhowlaiswaram to irrigate areas of the region stricken by famine in 1847. He is gratefully remembered by a statue and a museum near the anicut. In 1951 the Planning Commission calculated the dependable flow to be as 70 794 million m$^3$, and with only 16 850 million m$^3$ being used at that time this left 53 944 million m$^3$ for allocation between the states. As Orissa was not invited to the meeting, it did not ratify the agreement approved by the other states and, in fact, later questioned its validity. The agreement was questioned after the reorganization of the states that took place in 1953 and 1956. The Gulhati Commission was constituted and it assessed the average flow in the river to be 117 997 million m$^3$. Some projects were adopted in the new states on that basis, but a tribunal had to be appointed to investigate a dispute in 1969.

The Kaveri waters

The Kaveri River rises in Karnataka, has a length of 800 km and drains an area of 87 900 km$^2$ of which 41.2% lies in Karnataka, 3.3% in Kerala and 55.5% in Tamil Nadu. Its waters have been used for several centuries in the delta area. When the former Mysore State proposed the construction of the Krishnarajasagar dam in 1911, a dispute arose between the Madras Government and Mysore State. After protracted negotiations lasting 13 years, an agreement was signed in 1924 that was noteworthy for the detailed regulations incorporated to ensure adequate day-to-day supplies of water to the Kaveri delta in Madras Province. These regulations included: (a) verification of discharge curves at gauging places at 3-yearly intervals jointly by Mysore and Madras, (b) the discharge formulae could be revised by mutual agreement, (c) limit gauges and discharges at the upper anicut, and (d) regulation of the water impounded in the Krishnarajasagar reservoir in accordance with a the formula: $I = Kn(P - C)$, where $I$ is the quantity that may be impounded, $Kn$ is the inflow at the Krishnarajasagar reservoir, $C$ is the flow recorded by the gauge reading for a particular month given in a rule, $P$ is the proportion which the natural flow in the Kaveri at Krishnarajasagar bears to the corresponding natural flow at the upper anicut, and $I = Kn$ and $C$ to be expressed in the same units. Kerala became a riparian state after the reorganization of the states in 1956 and laid claims to an adequate allocation of water. The states accepted that the average flow in the system was 20 955 million m$^3$ and also reached a broad consensus on the areas irrigation and uses. The dispute between Tamil Nadu and Karnataka over sharing of the Kaveri waters is renewed whenever Karnataka refuses to release the appropriate share of water to Tamil Nadu, either due to inadequate rainfall in the basin area or the reservoirs in Karnataka do not permit such a release, putting the farmers in Kaveri delta to much suffering. In August 1998, the Chief ministers of the four riparian states, Tamil Nadu, Karnataka, Pondicherry and Kerala, signed an agreement on a scheme to implement the interim order which required Karnataka to release $205 \times 10^6$ m$^3$ of water to Tamil Nadu from the Mettur reservoir every rain year (from June to May) on a prescribed weekly basis. If there was a shortfall one week, Karnataka should make good the shortfall in the following week. The Kaveri River Authority was formed under this agreement, with the Prime Minister as its chairman and the four chief ministers as members. This dispute also has become
contentious between the two major political parties in Tamil Nadu! There is a parallel dispute between Tamil Nadu and Kerala over the areas of the Mullaperiyar River, which is not an inter-state river. But at least an agreement signed in 1886 between the princely State of Travancore and the Madras Presidency that allowed Tamil Nadu all the waters of the rivers even though they belonged to Kerala, is now being questioned by Kerala (Subramanian, 1999)!

ROLE OF THE NATIONAL WATER RESOURCES COUNCIL

As demands for agricultural, domestic, industrial, and environmental uses increase and the scope for additional water supplies is limited, finding appropriate mechanisms for inter-sectoral allocation remains an important challenge for India.

The “Draft National Policy Guidelines for Water Allocation among States” considered by the National Water Resources Council in February 1996 listed the broad objectives governing the allocation of waters as:

(a) The development of the waters of inter-state rivers for the betterment of the population of the states sharing a single river basin should be not be detrimental to the interests of the other basin states.

(b) Considering the need for developing the waters of a river basin for the well being of the nation, a meeting in 2000 was held to evolve a National Water Policy and discuss new guidelines for allocation of river waters among states. However, there was no agreement between the riparian states. It may now be necessary to place water in the Central Government list, by reviewing the laws, or in the concurrent list and declare water a “national asset”.

REFERENCES

