

B5-2010



SS Meenakshisundaram
Priya Raghavan
M Amarjeet Singh

NIAS

THE CAUVERY CONFLICT



NATIONAL INSTITUTE OF ADVANCED STUDIES

Bangalore, India

BACKGROUNDERS ON CONFLICT RESOLUTION

Series editor: Narendar Pani

This series of backgrounders hopes to provide accessible and authentic overviews of specific conflicts that affect India, or have the potential to do so. It is a part of a larger effort by the Conflict Resolution Programme at the National Institute of Advanced Studies, Bangalore, to develop an inclusive knowledge base that would help effectively address major conflicts of interest to the country. In pursuit of this objective it carries out research that could help throw up fresh perspectives on conflict even as it develops mechanisms to increase awareness about the nature of specific crises. The backgrounders form an important part of the second exercise.

The backgrounders are targeted at the intelligent layperson who requires a quick and yet reliable account of a specific conflict. These introductory overviews would be useful to administrators, media personnel and others seeking their first information on a particular conflict. It is also hoped that as the series grows it will act as an effective summary of scholarly information available on conflicts across the country.

By their very nature these backgrounders attempt to provide a picture on which there is some measure of consensus among scholars. But we are quite aware that this is not always possible. The views expressed are those of the author(s); and not necessarily those of the National Institute of Advanced Studies.

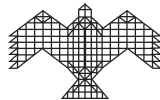
The dissemination of these backgrounders to all who may need them is an important part of the entire effort. Electronic copies can be downloaded from the institute's website. For hard copies at a nominal cost and for other queries and comments please write to

The Anchor
Conflict Resolution Programme
National Institute of Advanced Studies
Indian Institute of Science Campus
Bangalore - 560 012
India

Backgrounders on Conflict

THE CAUVERY CONFLICT

SS Meenakshisundaram
Priya Raghavan
M Amarjeet Singh



NATIONAL INSTITUTE OF ADVANCED STUDIES
Conflict Resolution Programme
Bangalore, India

© National Institute of Advanced Studies, 2010

Published by

National Institute of Advanced Studies
Indian Institute of Science Campus
Bangalore - 560 012
Tel: 2218 5000, Fax: 2218 5028
E-mail: admin@nias.iisc.ernet.in

NIAS Backgrounder

Citation: Meenakshisundaram SS, Raghavan P, and Singh A. 2010.
The Cauvery Conflict. NIAS Backgrounder on Conflict Resolution, B5-2010,
National Institute of Advanced Studies, Bangalore.

ISBN 978-81-87663-94-2

Price Rs. 75/-

Typeset & Printed by

Aditi Enterprises
aditiprints@gmail.com

CONTENTS

EXECUTIVE BRIEFING
1

FLASHPOINTS
4

TERRAIN
7

HISTORY
11

ISSUES AND CONTENDERS
16

INSTITUTIONS
26

OPTIONS
28

APPENDIX I
31

APPENDIX II
34

APPENDIX III
40

BIBLIOGRAPHY
45

LIST OF ACRONYMS

AIADMK	All India Anna Dravida Munnetra Kazhagam
CFFC	Cauvery Fact Finding Committee
CMC	Cauvery Monitoring Committee
CRA	Cauvery River Authority
CRRA	Cauvery Riot Relief Authority
CWC	Central Water Commission
CWDT	Cauvery Water Disputes Tribunal
DMK	Dravida Munnettra Kazhagam
MIDS	Madras Institute of Development Studies
NIAS	National Institute of Advanced Studies
PIL	Public Interest Litigation
SLP	Special Leave Petition
TMC ft	Thousand Million Cubic Feet

EXECUTIVE BRIEFING

The conflict over sharing of the waters of the Cauvery has spread over more than a century, involving four prominent contenders in South India— the riparian states of Karnataka, Tamil Nadu, Kerala and the union territory of Pondicherry. Karnataka and Tamil Nadu have historically clashed on the issue, dating back to the times of the British-controlled Madras Presidency and the Princely State of Mysore while Kerala entered the fray on the reorganisation of states in 1956 and Pondicherry, only in the 1970s.

While two treaties, the Agreements of 1892 and 1924, held the peace between Mysore and Madras through the last few decades of the nineteenth century and the first half of the twentieth, the sharing of Cauvery waters once again turned contentious with Tamil Nadu alleging a violation of the terms of one of the treaties by Karnataka, and conflicting interpretations by the two states of a clause of the 1924 agreement. Tamil Nadu

stood at a historical advantage in terms of irrigation development and Karnataka claimed its right to accelerate its exploitation of the waters. Through the 1960s, '70s and '80s, series of talks between the states failed to establish a solution agreeable to all the parties involved. Finally, in 1990, the Cauvery Water Disputes Tribunal was instituted with the purpose of arriving at a water-sharing formula between the states. The Tribunal released an interim order in 1991 and eventually, 17 years after its creation, announced its final verdict in 2007. However, the order is as yet unimplemented as a Special Leave Petition on the matter remains pending in the Supreme Court.

The course of the conflict has seen the emergence of four major issues.

Validity and enforceability of the agreements of 1892 and 1924

The legal and constitutional validity as well as enforceability of these

• Dr. SS Meenakshisundaram is Visiting Professor at National Institute of Advanced Studies, Bangalore; Ms. Priya Raghavan is at Singapore Management University; and Dr. M Amarjeet Singh is Assistant Professor at National Institute of Advanced Studies, Bangalore.

agreements played a significant role in the conflict through the twentieth century. Further, potential breaches of the agreements and suitable retributive action for the same became a significant point of contention between the states. While an examination of these aspects is now largely academic and has few practical implications, the Tribunal has relied upon the principles established and precedence laid by these agreements.

Principles of apportionment

With several conflicting international norms of water-sharing, the crux of the Cauvery issue lay in the determination of a fair means of apportionment of the waters based on sound, just and equitable principles. Tamil Nadu claimed its right to a majority of the water on the basis of prior appropriation or prescriptive rights – rights gained as a result of the historical employment of the waters by Tamil Nadu. Karnataka, on the other hand, asserted historical persecution and claimed that Tamil Nadu acquired its prescription through unfair, coercive means owing to the skewed power relations between the Madras Presidency and the Princely State of Mysore.

Distress sharing

A particularly complex issue associated with the dispute is the

question of how the waters are to be shared in ‘distress years’ or years when the monsoons fail, leaving the total flows depleted. The fatal error of an absence of such a formula in the interim order by the Tribunal instituted to apportion the Cauvery waters was rectified to a degree in the final order, but the details remain largely inadequate.

Linguistic issues

The Cauvery’s intrinsic association with the heritage of the regions she passes through has made her an inalienable part of their culture. These cultural ties have broadened the scope of the issue from a purely economic conflict about the division of a scarce, shared resource to an arena for linguistic and regional bigotry. The involvement of linguistic issues in the dispute has coloured negotiations and alienated contending parties, straining relations too far to hope for an easy conciliatory solution.

Management of riots and violence

The Cauvery dispute has, through the last few decades, seen several violent manifestations of the disagreements between the contending parties, particularly Tamil Nadu and Karnataka. In an atmosphere of heightened linguistic tension, the management and prevention of such violence is an important part of

moving towards a solution to the conflict.

Technical issues

Various technical disputes have hindered the progress of parties towards arriving at an agreeable solution. These issues deal with total surface flow, total yield of the river,

total volume of available water, appropriate points of measurement, contributions by states, volume of water required by each state, level of dependability to determine the yield and other such technicalities which must be smoothed out before tangible progress can be made towards arriving at a formula for water-sharing.

THE CAUVERY CONFLICT

FLASHPOINTS

The century-long water-sharing dispute has, during its lifetime, garnered considerable public attention, largely as a result of the riots and violent outbreaks that have come to be associated with it. Particularly in the past couple of decades, the situation discernibly escalated during years when the monsoons failed, leaving the coveted water scarcer and more hotly contested. Distress years saw farmers turn to extreme measures and politicians fail to arrive at a conciliatory means of settlement.

Interim award and riots

The Tribunal constituted to resolve the conflict released an interim award on 25 June 1991. Karnataka perceived this award as unjust and grievously injurious to its interests. When the award was gazetted by the Government of India on 11 December 1991, parts of Karnataka erupted in riots. Bangalore city saw thousands take to the streets in violent protest against the interim order. A state-wide bandh was announced on

13 December, during which the city witnessed to attacks on the Tamil population, particularly in western Bangalore. There were large scale disturbances, including acts of arson and the eviction of people from their homes in parts of Bangalore and its suburbs. From December 24 to 27, 1991, the violence spread to Mysore, Chamarajanagar, and Mandya districts and farmhouses owned by Tamils were attacked. Simultaneously Tamils began to attack Kannadigas within Tamil Nadu, where Kannadiga homes were attacked and vehicles with Karnataka license plates entering or leaving Tamil Nadu were set on fire.

Failure of monsoons in 1995-96

The failure of the monsoons in Karnataka in 1995 left the state hard pressed to fulfil the requirements of the interim order. When Tamil Nadu approached the Supreme Court demanding the immediate release of at least 30 TMC ft by Karnataka, the

Supreme Court asked Tamil Nadu to approach the Tribunal. The Tribunal thereafter recommended Karnataka to release 11 TMC ft, which Karnataka subsequently pleaded was impossible under the prevailing circumstances and would cripple a large majority of farmers in the state. Several farmers took to the streets in protest while others resorted to more extreme means such as suicide, claiming they could no longer support their families. When Tamil Nadu went back to the Supreme Court demanding that Karnataka be forced to obey the Tribunal's order, the Supreme Court recommended that the then Prime Minister, Mr. P. V. Narasimha Rao, intervene and find a political solution. The Prime Minister convened a meeting with the Chief Ministers of the two states and recommended that Karnataka release 6 TMC ft instead of the 11 TMC ft that the tribunal ordered, a decision Karnataka complied with.

Walk out by Tamil Nadu CM

In the summer of 2002 the monsoon failed in both Karnataka and Tamil Nadu, causing water levels in reservoirs in both states to fall to record lows. Karnataka again pleaded its inability to meet the interim standards and stated that the water levels were hardly enough to meet its own demands, ruling out releasing any

water. In a meeting between the Prime Minister and Chief Ministers, who constituted the Cauvery River Authority (CRA), convened to resolve the crisis on 27 August 2002, Tamil Nadu Chief Minister Jayalalithaa walked out.

Suicide by a farmer

When, on 8 September 2002, the CRA asked Karnataka to release 0.8 TMC ft, the state refused to release any water as there were already large scale protests across the Cauvery basin districts of the state. Tamil Nadu appealed to the Supreme Court, a move which saw Karnataka resume the release of water, but only for a few days. On 18 September 2002, Karnataka once again ceased to release water to Tamil Nadu when a protesting farmer committed suicide by jumping into the reservoir at Kabini.

Entry of film stars

When the Supreme Court ordered Karnataka on 3 October 2002 to comply with the CRA and resume the release of water, the film industry made a foray into active involvement with the dispute. In Bangalore, Kannada movie stars, led by Dr. Rajkumar, conducted a demonstration to convey their dissatisfaction in the way the matter was being handled. Later, on 12 October, the Tamil film industry, under director Bharathiraja, conducted a public

rally in Neyveli, demanding that the Neyveli Lignite Corporation terminate the supply of power to Karnataka. The next day, actor Rajnikanth, conspicuous

in his absence at the rally, observed a token one-day fast in Chennai, tacitly backed by the Dravida Munnettra Kazhagam (DMK).

TERRAIN

The Cauvery is an inalienable part of South Indian heritage. The river's 800 kilometre-long journey, from its origin 1,340 meters above sea level down the ghats and through the plains and eventually into the Bay of Bengal, has over the centuries had a deep and lasting impact on the cultures that have developed on her banks. Her influence extends from mundane matters of agriculture and livelihood to spiritual beliefs and religious identities.

At her birthplace, Talakaveri, in the Brahmagiri hills in Kodagu district of Karnataka, the Cauvery sees thousands of pilgrims climb up past Kodagus' coffee estates, to the forest-covered Western Ghats to cleanse themselves of their sins in her waters. Thereafter, she turns left, soon to be joined by Harangi, her first significant tributary, at the border of Kodagu and Mysore districts. Further, she gains smaller tributaries like Kakkabe, Kadamur and Kummanhole. The river is joined a little later by the Hemavathy. At the confluence of three rivers – the Cauvery, Hemavathy and Laxmanthirtha – 12 kilometres north-west of the city of Mysore – lies Krishnarajasagar dam which

came into operation in 1931. The Cauvery then splits and rejoins to form the historic city of Srirangapattana, best known as the capital of Tipu Sultan. The town is also religiously significant as it is believed to be where the goddess Cauvery herself invited Ranganatha to stay. The Cauvery is then joined by Laxmanthirtha and later by another major tributary, Kabini, which originates in Kerala. While still within the state of Karnataka the river is joined by Suvarnavathy and Shimsa. Then, past the island of Sivasamudram, near the site of Karnataka's first hydroelectric project, the Cauvery narrows and falls rapidly in a series of waterfalls as she negotiates the hilly terrain of the Western Ghats. In her journey further east, she forms a boundary between the states of Karnataka and Tamil Nadu for 64 kilometre, absorbing the tributary Arkavathi before entering Tamil Nadu. The hilly terrain through which the Cauvery flows in Karnataka ensured it could not be easily diverted for agriculture before the era of large dams.

At Hoganekal falls, the Cauvery veers south to enter the Mettur reservoir of Tamil Nadu constructed in 1934. About

45 kilometres below the Mettur reservoir she meets the Bhavani river, which originates in Palakad district of Kerala, to enter the plains of Tamil Nadu. Once in the plains the Cauvery is joined by tributaries Noil and Amaravathy. Below the Upper Anicut, the river branches into two streams which, further down, reunite to form the island of Srirangam. The island is famous for its Ranganatha temple with influences from several dynasties, including the rulers of the Vijayanagar kingdom and the Nayaks. At the sacred site of Srirangam the river is an impressive one kilometre in width. The Grand Anicut, believed to have been built in the mid to late Chola times, is an immense construction for its time, spanning a thousand feet across the Cauvery and sixty feet wide. It stands just after Srirangam island, diverting water into a network of channels that feed the Cauvery delta to the east. As part of an agrarian system that the Cholas founded, which remained largely unchanged till the nineteenth century, the Grand Anicut employed a technology that was ahead of its times.

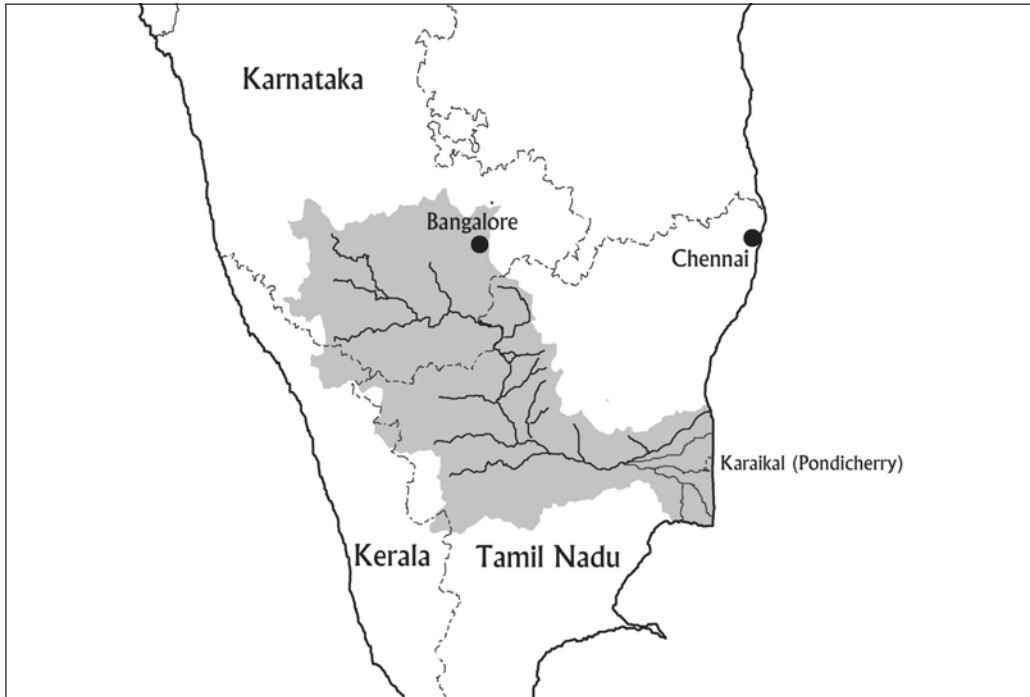
Thereafter, there is a further split of the Cauvery into two, with one branch acquiring the name the Vennar, while the other retains its original name. Finally, the branches split into innumerable smaller branches all of which eventually flow into the Bay of Bengal. Several of these smaller

streams flow through the Karaikal region of the Union Territory of Pondicherry.

The terrain through which the river flows is very different in Karnataka and in Tamil Nadu. The hilly terrain in Karnataka leads on to plains in Tamil Nadu. As a result irrigation in the basin commenced centuries earlier wherever the soil, land and contours were optimal for raising irrigated crops. Prior to the introduction of the Krishnarajasagar dam, the total irrigated area in the basin was 19.80 lakh acres utilising about 510 TMC of water. This was largely through a diversion system developed over the ages, which ensured that the irrigated areas were concentrated in the plains, further along the course of the river.

Along with the differences in the terrain, the pattern of the monsoons too differ between the upper riparian and lower riparian states of Karnataka and Tamil Nadu. The Cauvery basin receives the major portion of its rainfall from the South-West Monsoon. The South-West Monsoon usually sets in about the end of May or early in June. It continues with some intervals till the end of September. The river benefits from heavy rainfall to the order of 2000-2500 mm in the Western Ghats from the South-West monsoon. In the middle basin, lying in the rain-shadow of the ghats, the amount of rainfall is considerably less

The Cauvery Basin



(700-900 mm). Downstream of the Mettur Dam, the Cauvery catchment is under the influence of the North-East monsoon. The period of this monsoon is from October to December and floods due to this monsoon usually occur in November. It is during this period that the eastern coastal belt gets most of the rain. In the eastern Thanjavur delta, which benefits substantially from the North-East monsoon, the rainfall is to the order of around 1100 mm.

The differences in terrain as well as in the monsoons influence the cropping

pattern as well. Along the stretch of the Cauvery falling within Karnataka the cropping pattern consists mainly of rice, sugar-cane and irrigated dry crops. In Tamil Nadu a two-crop system of rice cultivation has come to be practiced in over a third of the delta: the first crop, *kuruvai* is grown from June to September, followed by the second crop, *thaladi*, from October to January, the latter watered by the North-East monsoon. In a large part of the delta, a single long duration crop, the *samba*, is cultivated from August through to January.

Table 1: Summary of Irrigation Development

Year	Area (gross lakh acres) in Karnataka	Area (gross lakh acres) in Tamil Nadu
1901	1.11	13.45
1928	1.11	14.44
1971	4.42	25.30
1990	21.38	25.80

Source: The Cauvery Water Disputes Tribunal

HISTORY

The first manifestation of a conflict over sharing the Cauvery waters emerged with the claim of the Dewan of Mysore, Sheshadri Iyer, while Mysore was under indirect rule of the British, that “All rivers flowing from Mysore into Madras pour an unused surplus into the sea. Mysore may intercept and take measures to utilize such surplus”. The Dewan explicitly recognised that Mysore’s claim to the water was limited by the Madras Presidency’s right to a supply of the water, acquired by prescription. Given this recognition of Madras’ prescriptive rights over the water, the contention lay in the establishment of what, precisely, constituted a ‘surplus’ and, consequently, at what point the interests of the Madras Presidency would be adversely affected. As a result of the dominant political relationship enjoyed at that point by the British-controlled Madras Presidency relative to that of the indirectly ruled Mysore, an agreement was signed in 1892 making it the prerogative of the Madras Presidency to unilaterally determine when its interests were being compromised.

The consensus arrived at through this agreement was, however, short-lived. In

1910, when Sir M Visvesvarayya was the Chief Engineer of Mysore under Maharaja Krishnaraja Wodeyar IV, he submitted a note on the Cauvery reservoir project to be constructed at Kannambady – the first of its kind in the basin. To negate the imbalance in powers between the contending parties, which was biased heavily in favour of Madras, he argued that the construction of the reservoir (later to be called Krishnarajasagar) would be aligned with British interests as it would help towards meeting the power requirements of the Kolar Gold Fields – run at that time by British companies. In 1909, the Madras Presidency submitted a proposal to build a balancing reservoir at Mettur. An agreement, finally reached in 1924, retained the 1892 agreement’s commitment to the protection of the prescriptive rights of Madras while recognising the need to address Mysore’s demand for an equitable sharing of water. The agreement also allowed both states to proceed with work on Krishnarajasagar and Mettur respectively, while placing limits on both states in terms of the area that could be irrigated. The agreement, additionally, in its clause 10(xi) provided

that the limitations and arrangements embodied in clauses (iv) to (viii) of paragraph 10 shall at expiry of fifty years from the date of the execution be open to reconsideration in the light of the experience gained and of an examination of the possibilities of the further extension of irrigation within the territories of the respective Governments.

The coming of Independence in 1947 and the reorganisation of states in 1956 saw the state of Kerala, comprising of the territories of the erstwhile state of Travancore-Cochin, and Malabar district, lay legitimate claim to a share of the Cauvery water. Additionally, Pondicherry, particularly post 1972, claimed that there were years when there was a shortfall of water that flowed into the Union Territory. Thus, the conflict turned from a bi-partite dispute to a multi-party one with Kerala and Pondicherry joining the fray. However, Karnataka and Tamil Nadu remain the most significant players in the dispute to date.

During the years 1956 through 1968, the state of Karnataka commenced the construction of the Harangi (1964), Kabini (1959), Hemavathi (1968) and Suarnavathi (1965) dams to offset Tamil Nadu's Bhavani and Amaravathi dams as well as its ayacut of 1.10 lakh acres. In 1968, the government of Tamil Nadu objected to the construction of all four

dams on the grounds that they were in violation of the 1924 agreement, and withheld consent for the projects. In the light of Tamil Nadu's objections, the Central Water Commission did not clear these projects and neither did the Planning Commission of India, forcing Karnataka to fund them from its own non-plan allocations. When, in August 1968, the first round of talks between the states failed, Tamil Nadu requested that the matter be referred for arbitration.

When in February 1970, Mysore's Minister for Labour and Law declined to give an assurance that the two interstate agreements would be honoured by Mysore, the Government of Tamil Nadu made a formal request to the Government of India under Section 3 of the Inter-State Water Disputes Act of 1956 to refer the dispute to a Tribunal.

In 1971, the Tamil Nadu Government approached the Supreme Court of India through a suit with a prayer to direct the Government of India to constitute a Tribunal as per the provisions of the Inter-State Water Disputes Act of 1956 and, pending disposal of the suit and the disposal of the reference by the Tribunal, restrain the state of Karnataka by an injunction from proceeding in any manner with, or executing, their projects.

Following this, on 29 May 1972, the then Prime Minister Indira Gandhi

arranged a meeting between the Chief Ministers of Tamil Nadu, Kerala and Karnataka and the Union Minister for Irrigation and Power, during which all parties agreed to the establishment of a Cauvery Fact Finding Committee (CFFC), and Tamil Nadu withdrew its suit.

The CFFC compiled and submitted its initial report in December 1972, followed by an additional report on 14 August 1973. The data presented by the CFFC was accepted by the Chief Ministers on 29 April and 9 November 1973.

In the years 1974 and 1976, though the Government of India put forth two draft proposals for a negotiated settlement for consideration by the state governments, no agreement was arrived at. In 1978, the Union Territory of Pondicherry formally entered the dispute.

From 1981 through 1985, Karnataka and Tamil Nadu engaged in a series of bilateral talks none of which moved significantly in the direction of conflict resolution. In a meeting convened by the Union Minister for Water Resources on 16 June 1986, in Bangalore, the Government of Tamil Nadu made a formal request for the constitution of a Tribunal. Additionally, in November of 1986, Tamil Nadu Cauvery Delta Farmers Welfare Association filed a writ petition in the Supreme Court seeking a Tribunal to be instituted.

When differences persisted through further rounds of talks, the Centre expressed its desire for the Supreme Court to settle the issue in its hearing on 24 April 1986. On 4 May 1990, the Supreme Court directed the Centre to constitute a Tribunal within a month of the ruling. On 2 June 1990, the Centre notified the Cauvery Water Disputes Tribunal with Justice Chittatosh Mookerjee as chairman and Justices SD Agarwala and NS Rao as members.

On the 28th of July, at the first sitting of the Tribunal, Tamil Nadu filed a petition for an interim order, and a direction to Karnataka not to utilise or impound Cauvery water beyond what was obtained on 31 May 1972. In retaliation, Karnataka and Kerala contended that the Tribunal did not have jurisdiction to pass interim orders.

On 5 January 1991, the Tribunal said that it did not feel it had the power to issue interim orders unless the Government of India were to specifically refer the issue of grant of interim relief to the Tribunal. In response, on the 10 January, Tamil Nadu filed a Special Leave Petition before the Supreme Court against the Tribunal's decision in this matter. On 26 April, the Supreme Court ruled on the matter, decreeing that the Tribunal could, in fact, issue interim orders. Following this, on 25 June, the Tribunal passed an

interim order, directing Karnataka to release 205 TMC ft of water a year, of which, Tamil Nadu would release 6 TMC ft to Pondicherry.

On 25 July 1991, the Government of Karnataka promulgated an ordinance - 'The Karnataka Cauvery Basin Irrigation Protection Ordinance 1991' - to 'protect the interest' of the state of Karnataka, with the purpose of negating the Interim Order. On 22 November 1991, the Supreme Court held the ordinance illegal and ordered the gazetting of the Tribunal's interim order. In December 1991, the Centre notified the interim order in the gazette, sparking violence against Tamils in several districts in Karnataka and retaliatory attacks by Tamils at the border of the two states.

On 18 July 1993, the then Chief Minister of Tamil Nadu, Jayalalithaa, commenced an indefinite fast in Chennai, demanding that Karnataka release water to save the *kuruvai* crop of Tamil Nadu. She appealed to the Centre to issue a directive to the Government of Karnataka to implement the interim order and set up a monitoring committee to ensure compliance. All India Anna Dravida Munnetra Kazhagam (AIADMK) supporters resorted to violence, particularly targeting Central government properties. On 21 July, Jayalalithaa ended her fast on an assurance from Union Water

Resources Minister VC Shukla to set up a monitoring committee.

On 11 August 1998, the Centre established the Cauvery River Authority (CRA) and a Cauvery Monitoring Committee to implement the interim order. The CRA was chaired by the Prime Minister and had the Chief Ministers of the four contending parties as members. The CRA, on 8 September 2002, ordered Karnataka to release 0.8 TMC ft to Tamil Nadu. Instantly, a confrontation erupted between the two states. Farmers of Mandya and Mysore districts in Karnataka resorted to violent means of expressing their discontent and took out multiple processions. Prominent members of the entertainment industry on both sides rallied to the cause. On the 4 October, the Supreme Court asked Karnataka to resume the daily supply of water to Tamil Nadu. When the then Chief Minister of Karnataka, SM Krishna, refused to implement the order, Tamil Nadu sued for contempt after which SM Krishna apologised to the court.

April 2003 saw the birth of the 'Cauvery Family', a body of farmers, academics and journalists from Tamil Nadu and Karnataka to better understand the issues surrounding the dispute.

Finally, on 4 February 2007, a full 17 years after its inception, the Tribunal announced its final ruling and award on

the Cauvery Dispute. In a unanimous award, the Tribunal determined the total availability of water in the Cauvery basin at 740 TMC ft at the Lower Coleroon Anicut site on the basis of 50 per cent dependability and after reserving 14 TMC ft for environmental protection and escapages into the sea, apportioned the total as follows: Tamil Nadu was allocated 419 TMC ft (as against the demand of 562 TMC ft); Karnataka 270 TMC ft (as

against its demand of 465 TMC ft); Kerala 30 TMC ft and Pondicherry 7 TMC ft.

While the award was initially hailed in Tamil Nadu, Karnataka expressed deep discontentment in the final award and a one-day 'hartal' was observed throughout the state. Karnataka, Kerala and Tamil Nadu, however, subsequently filed a Special Leave Petition (SLP) in the Supreme Court. As of now, the SLP remains pending the Supreme Court's consideration.

ISSUES AND CONTENDERS

VALIDITY AND ENFORCEABILITY OF THE AGREEMENTS OF 1892 AND 1924

A large part of the controversy surrounding the Cauvery is rooted in the agreements of 1892 and 1924 and questions regarding their constitutional and legal validity and enforceability.

Expiry of the Agreement of 1924

Of the several disputed issues pertaining to the two agreements, the most heavily contested and significant was that regarding the expiry of the agreement of 1924. Clause 10(xi) of the agreement stated that

‘The Mysore Government and the Madras Government further agree that the limitations and arrangements embodied in clauses (iv) to (viii) supra shall at the expiry of fifty years from the date of the execution of these presents, be open to reconsideration of the possibilities of further extension of irrigation within the territories of the respective governments and to such modifications and additions as may be mutually agreed upon as the result of such reconsiderations.’

The Government of Karnataka interpreted the above as a statement of the expiry of the entire agreement and that, after a period of 50 years, none of its clauses were enforceable. The Government of Tamil Nadu, on the other hand, asserted that the agreement was permanent in nature and that all the terms therein were binding on Mysore, now the State of Karnataka. In its final report, the Tribunal ruled that it was difficult to accept the contention on behalf of Tamil Nadu that the allocation and apportionment of the waters of the Cauvery should be strictly in terms of the infinite agreement of 1924. The Tribunal instead recommended a consideration of the terms of the agreement while evaluating the developments made in different states vis-à-vis the equitable share of each riparian state.

Validity of Agreements

It was additionally submitted on behalf of the state of Karnataka that the Princely State of Mysore entered into the agreement of 1924 as well as that of 1892 under certain compulsions, particularly given the skewed power equations

between the Princely State of Mysore and the Madras Presidency at the time of the agreements. However, the Tribunal ruled on the issue that the agreements could not be challenged on the aforementioned basis at as late a stage as they were, after a lapse of more than 100 years in the case of the 1892 agreement and 80 years in that of the agreement of 1924. Additionally, the Tribunal stated that Karnataka could not repudiate an agreement which they, at some point, gained from, through the construction of the Krishnarajasagar Dam.

Enforceability

Once it was established that the agreements could not be held to be invalid and void so as to be ignored, the next level of contention was whether the agreements had become constitutionally invalid and were no longer enforceable against the state of Karnataka.

The stance of the Government of Tamil Nadu on the issue was that both the agreements of 1892 as well as 1924 were permanent in nature, with only a recommended reconsideration of some of the clauses of the Agreement of 1924 contemplated. Tamil Nadu maintained that by reason of the provisions contained in Section 177 of the Government of India Act, 1935, the 1924 Agreement continued to be in force. The state believed

that when British paramountcy lapsed on 15 August 1947, the Agreement did not lapse automatically due to the provision in Section 7(1) of the Indian Independence Act of 1947, under which agreements continued to be in force in the absence of denunciation of those agreements by either party or by superseding them by a fresh agreement.

On the other hand, according to the state of Karnataka, the Agreement of 1924 was not covered by Section 177 of the Government of India Act of 1935, as the section only recognised agreements made by or on behalf of the Secretary of State in Council. Karnataka asserted that the Agreement of 1924 was entered into between the then state of Madras and the Government of Mysore with no involvement of the Secretary of the State in Council, excluding it from agreements covered in Section 177. Thus, the Government of Karnataka sought to establish that the Agreement of 1924 lapsed after the Government of India Act of 1935 came into force.

On an examination of evidence of correspondence between relevant parties, furnished by both states, the Tribunal ruled that the agreement could, in fact, be judged as on behalf of the Secretary of the State in Council and, consequently, fell within the purview of Section 177, contrary to the case proposed by Karnataka.

It was then urged on behalf of the state of Karnataka that under of Section 7(1) of the Indian Independence Act 1947, the agreement lapsed as it amounted to a Treaty between a British Province and a Ruling State. The clause essentially stated that as from the appointed date, in view of Section 7(1)(b) the suzerainty of His Majesty over the Indian states lapsed and with it, all Treaties and Agreements. It was however argued that once Section 7(1) of the Indian Independence Act came into force, all the agreements or treaties which had been entered into earlier did not lapse automatically, they continued to be in force on basis of ‘standstill agreements’, temporary arrangements designed to maintain the *status quo ante* in respect of certain administrative matters of common concern, pending the accession of those states to the Dominion of India. They were superseded by the Instruments of Accession executed by the rulers of those states. The Tribunal ruled that the Agreement of 1924 survived and continued, even after the implementation of the Indian Independence Act and was governed by Article 295(2) of the Constitution of India.

Breach of Agreements and Consequences

Another issue pertinent to the two agreements is whether either or both states

breached the agreements and, consequently, what, if any, retributive action was suitable. Both Karnataka and Tamil Nadu accused each other of breaching the Agreements of 1892 and 1924. Tamil Nadu alleged that the executive action taken by Karnataka in constructing reservoirs on Kabini, Hemavathy, Harangi, Suvarnavathy and other projects and expanding its ayacuts has prejudicially affected the interest of Tamil Nadu and Pondicherry, materially diminishing the supply of the waters to the states. Karnataka claimed there were several instances of Tamil Nadu committing breaches of the terms of the agreements.

The Tribunal deemed it futile to investigate who was responsible for such breaches or violations as the Tribunal believed it would be purely academic and of no practical use. It stated that during the hearing of the dispute, it was more or less an admitted position that the state of Tamil Nadu had increased its acreage under the Cauvery Irrigation System from 16 lakhs to 28 lakhs and that, similarly, the state of Karnataka had increased its area under irrigation as well. Given this, the Tribunal believed the issue regarding non-compliance and violation of the terms of the Agreement of 1924 by the two states did not merit any further examination.

PRINCIPLES OF APPORTIONMENT

Looking beyond the agreements of the colonial era, the key issue in the Cauvery dispute is the determination of a fair principle of apportionment of the waters between riparian states. Several often-conflicting principles have been applied internationally to deal with conflicts related to the sharing of waters by various riparian states or countries. The Harmon doctrine, propounding a theory of absolute territorial sovereignty, dictates that a riparian state can do what it pleases with its waters with no regard to its effect on other co-riparian states as it has absolute sovereignty with regards the exploitation of a resource within its territorial boundaries. The principle of Natural Flow, quite to the contrary, states that every lower riparian is entitled to 'the natural flow' of the river without any interference from the upper riparian state because such interference would amount to a violation of the territorial 'integrity' of the lower riparian of which the river is a constituent. In addition to these principles, the principle of prior appropriation protects the interests of the 'first user' or the riparian that was the first to put the waters to beneficial use, stating that the first user acquires a prior right to the extent of such use.

Tamil Nadu leant largely on the primacy of protection of prescriptive

rights, acquired through prior appropriation, as an argument to claim a substantial share of the waters. Historically, Tamil Nadu has enjoyed a bulk of the waters of the Cauvery and argued that as a large portion of its population had come to depend on the river for their livelihood, it was essential that the flow to the state not be reduced substantially.

The state of Karnataka, on the other hand, argued that the past Agreements were signed by the state of Mysore under certain compulsions and had come to severely hamper Karnataka's ability to utilise the waters. It discredited, to a degree, the prescriptive rights of Tamil Nadu alleging that they were unfairly acquired. Karnataka believed that their significant contribution to the waters of the river as well as the resources they had invested in its utilisation entitled the state to a share of the water beyond what their allocation would be purely on the basis of prior utilisation or prescription.

The Tribunal ruled on the matter that past utilisation, a relevant factor while apportioning the water of an inter-state basin, was not the exclusive basis for the same and could be outweighed by certain circumstances prevailing in other riparian states.

The Tribunal further recognised the need to arrive at an equitable means of

apportionment, taking into consideration the economic and social needs of the riparian states as well as other factors deemed pertinent. To arrive at such a system of apportionment, the Tribunal shunned both the Harmon as well as the Natural Flow doctrines and referred, instead, to the Helsinki Rules of 1966 which recommended the consideration of several relevant factors including the geography of the basin; its hydrology, in particular the contribution of water by each basin state; the climate influencing the basin, past utilisation of waters, the economic and social needs of each basin state; the population dependant on the waters in each state; the comparative costs of alternative means of fulfilling the above needs; the availability of alternative viable resources; the avoidance of unnecessary wastage during utilization; the practicability of compensation to one or more co-basin states as a means of easing both conflicts among users as well as the limits to which the needs of a basin state could be satisfied.

DISTRESS SHARING

Another issue associated with apportionment was the question of distress sharing – how water would be distributed in a distress year when monsoons failed, reducing the available surface flow of the river. The issue became

particularly significant after the crisis of 1995-1996 where the rains failed in Karnataka resulting in an acute shortage of water and rendering the state unable to release the amount dictated by the interim order to Tamil Nadu. The absence of any form of a distress sharing formula in the interim order placed on Karnataka the unreasonable burden of releasing almost all available water to Tamil Nadu.

In its final award, the Tribunal had stated that distress will be shared ‘proportionately’ – a solution that, while an improvement on the interim award, has been accused of being all too ambiguous for as significant and complex an issue as distress sharing. Particularly because of the chosen level of dependability, 50 per cent, a definite distress sharing formula is of essence as this dependability level indicates that in one out of every two years, water will fall short of the at 740 TMC ft the Tribunal estimated as the yield of the river, making ‘distress’ a regular reality as opposed to an unlikely possibility.

LINGUISTIC ISSUES

The Cauvery has historically exerted a heavy influence on the culture and heritage of the regions she passes through. This inherent association of the river with the traditions of Karnataka as well as Tamil Nadu have expanded the realm of the issue

from a purely economic conflict between states for a scarce shared resource to a symbolic struggle between two prominent linguistic groups, both using the background of dispute as a justification for heightened regional chauvinism.

Through the history of the conflict, these linguistic sentiments have come to influence the course of the dispute. Most negotiations between the state governments were coloured by the chauvinistic sentiments that ran high in both states, with senior leaders taking extreme dogmatic stances, reflective of the linguistic chauvinism of their citizens, hampering the likelihood of an amicable, negotiated settlement to the dispute. The significant involvement of poor, landless citizens of both states in the rioting and violence of 1991 and individuals, who, as non-agriculturists, had no direct stake in the Cauvery issue, only went to prove that the issue was not, in fact, only about water.

The active involvement of the Tamil and Kannada film industries with the issue deepened the linguistic dimension of the dispute. During the period of heightened tensions in 2002, aside from the involvement of the movie stars in various rallies, the screening of Tamil films was completely stopped in Karnataka and all Tamil channel broadcasts were interrupted for a day. This direct association of the water dispute

with linguistic elements was one of many manifestations of the expansion of the conflict from a purely economic to a more multi-dimensional, linguistic issue between the states involving not only the farmers who were directly affected by the outcome but also the general population who viewed the championing of the issue as a move towards the preservation of their culture and regional pride.

The linguistic dimensions of the dispute have come to be kindled, magnified and exploited largely to serve political mobilisation of masses along regional lines, where politicians on both sides leveraged on already established regionalist sentiments to gain mileage for their cause. Its intrinsic involvement with linguistic sentiments only further complicated the Cauvery issue and made its resolution by amicable or conciliatory means a more distant dream.

MANAGEMENT OF RIOTS AND VIOLENCE

Particularly in the last few decades, violent attacks have come to be an unfortunate but undeniable part of the Cauvery conflict. With several processions and riots turning violent on both sides of the border, the understanding and prevention of aggression associated with the conflict has become a significant part of solving the dispute.

The worst manifestation of such rioting taking a violent turn was soon after the Centre notified the interim order in the Gazette on 11 December 1991. The three stages of violence that followed, first in Bangalore, then spreading to Mysore, Mandya and other districts of Karnataka and finally, attacks on Kannadigas in Tamil Nadu, saw gruesome outbursts of some of the worst ever violence witnessed in the two states.

The Supreme Court, in 1999, in response to a Public Interest Litigation (PIL), directed the constitution of the Cauvery Riot Relief Authority to examine the damages suffered by victims of the riots through claims submitted by them and determine adequate compensation for the same. The CRRA in Karnataka received applications directly from 7,425 victims and Tamil Nadu transferred 2,151 claims. For 9,576 Tamil victims in Karnataka, the Authority had recommended a compensation of Rs. 2.05 crores and for the 93 Kannadiga victims in Tamil Nadu, a sum of Rs. 29.77 lakhs was recommended. In a judgment upholding the findings and recommendations of the CRRA, the Supreme Court directed Karnataka and Tamil Nadu to pay within six months a total compensation of Rs. 2.34 crores to 9,669 victims of the Cauvery river riots.

Aside from the violence in 1991, most riots sparked by the Cauvery issue were associated with years when the monsoons failed, exacerbating the issue of water scarcity. An ambiguous distress sharing formula only worsened the situation, making each drought year a crisis in terms of the conflict between the two states. Farmers rioted in each of these years and often took to drastic measures like taking their own lives. Some rioting often spilled into the cities as well. The linguistic and cultural dimension of the issue also often provoked violent, emotional reactions to crisis situations.

Drawing from their experience in 1991, governments on both sides of the border took every precaution to make sure that the announcement of the Tribunal's final verdict in 2007 did not provoke a similar situation. With sufficient forces positioned across both states, the situation was kept well under control.

TECHNICAL ISSUES

The division of the waters of the Cauvery among the riparian states has also encountered several technical disputes between the parties involved. The Cauvery Fact Finding Committee was instituted largely to reconcile some of these differences and help arrive at some consensus about the technical details of the dispute such as the total surface flow,

total yield of the river, total volume of available water, appropriate points of measurement, contributions by states, volume of water required by each state, level of dependability to determine the yield etc.

Level of dependability

One of the most controversial decisions by the Tribunal was the estimation of the yield of the Cauvery at a dependability of 50 per cent. Before determining the allocation of waters, the Tribunal needed to arrive at a figure for the total available water for distribution- the yield of the river. This yield varies depending on rainfall, catchment area characteristics and various climatic patterns associated with the basin. The annual yield of a river basin varies from year to year largely depending on rainfall- its intensity and distribution in both time and space. Since the annual yield is variable from year to year, it is essential to arrive at a figure of sustainable utilisable flow which could be considered for allocation among the parties. This is where the 'dependability' factor is significant. The Tribunal determined that at a dependability of 50 per cent, the yield of the river was 740 TMC ft. 50 per cent dependability implied that 50 per cent of the time, the flow would be more than the amount estimated while 50 per cent

of the time, it would be less. Thus, a yield of 740 TMC ft at 50 per cent dependability implies that for 50 per cent of the years, the yield will be greater than or equal to 740 TMC ft while for the other 50 per cent, it will fall short of the amount i.e., there will be a shortage, on an average, once in every two years. At a dependability of 75 per cent, the Tribunal determined that the yield stands at 670 TMC ft, meaning that in 3 of 4 years, the flow will be greater than or equal to 670 TMC ft while in the fourth year, it will be less than 670 TMC ft. While Tamil Nadu propounded the employment of 75 per cent for fewer distress years, Karnataka advocated the employment of 50 per cent. A lower dependability of 50 per cent, while leaving room for uncertainty, allows for more optimal utilisation of waters than a dependability of 75 per cent, under which 3 of 4 years will see a surplus go wasted. The Tribunal's decision to go with a 50 per cent level of dependability leaves room for every alternate year to be a distress year – a largely undesirable scenario particularly in light of the established issues associated with distress sharing.

Stations of measurement

Several disputes also arose over which points of measurement should be included in the determination of the surface flow

Table 2: Yield in the Cauvery basin: 1934-72

State	Yield on 50% dependability	Yield on 75% dependability
Karnataka	392 (53%)	355 (53%)
Tamil Nadu + Pondicherry	222 (30%)	201 (30%)
Kerala	126 (17%)	114 (17%)
Total	740	670

Source: The Cauvery Water Disputes Tribunal

of the river. Through the course of the river, several gauging stations have been established over the decades, some set up and maintained by the Central Water Commission, others by the states themselves. As there were discrepancies in the readings at several stations, each state fought for the inclusion of readings beneficial to their claims. A CWC-established gauging station at Biligundulu, on the border of Karnataka and Tamil Nadu, and a station at Mettur were particularly contentious as they were alleged to have readings inconsistent with each other. With Mettur downstream from Biligundulu and with minimal withdrawals between the stations as well as some contributions, the reading at Mettur was far lower than that at Biligundulu – a difference experts believed could not be attributed simply to withdrawals along the way. For Karnataka, the reading at Biligundulu was strategically advantageous as they had to release less water while Tamil Nadu

stood to gain from a Mettur reading. This was because if Karnataka was required to release enough water to record a reading of, say, 205 TMC ft, they would have to release less water to meet this reading at Biligundulu than to make the same at Mettur. The Tribunal did not rule explicitly on the inconsistencies. The point of measurement was however altered in the final verdict. While in the interim award it had directed Karnataka to release water to be measured at the Mettur station, in its final award, it directed that the water be measured at the Biligundulu station.

Inclusion of groundwater in estimations

Another contentious technical issue was the question of the inclusion of groundwater in the determination of the total yield and subsequent division of waters. Within the Cauvery basin, the groundwater is estimated to be about 67 per cent of the utilisable surface water.

Tamil Nadu as the lower riparian has significant availability of groundwater, while Karnataka and Kerala, as upper riparian states, have minimal quantities of, and access to, the same. Karnataka

wanted groundwater usage to also be taken into account while Tamil Nadu benefited from not restricting the usage of this source. The Tribunal's award allows for the unrestricted use of groundwater.

INSTITUTIONS

Several agencies have come to play significant roles in shaping the course of the Cauvery conflict. These include various judicial, state and independent institutions which have affected or been affected by the Cauvery dispute in different ways.

The four states involved form the backbone of the conflict, with Karnataka and Tamil Nadu remaining in the conflict right from its inception and Kerala and Pondicherry joining later. In all the states, particularly Tamil Nadu and Karnataka, the Cauvery issue has both heavily influenced as well as been influenced by the various political parties contesting in these states and the shifting power dynamics between these parties.

The CWC maintained several of the gauging stations along the course of the Cauvery and played a role in clearing up technical contentions, particularly through its contribution to the CFFC in its final report. The CFFC and its report was critical to establish certain uncontested technical realities in which future appropriation strategies could be rooted, although it made no explicit

recommendations regarding division of the waters.

Additional state machinery to work towards resolution of the issue included the Cauvery River Authority (CRA) as well as the Cauvery Monitoring Committee (CMC), established in order to implement the interim order. While the CRA comprised the Prime Minister as chairman and the Chief Ministers of the four contending states as members, the Monitoring Committee, instituted to assist the CRA in its functions, consisted of engineers, technocrats and other officers who would take stock of the 'ground realities' and report to the CRA.

The judiciary also saw a continued involvement with the Cauvery issue, starting from Tamil Nadu's 1968 appeal to the court to refer the matter to a Tribunal for arbitration. Its decisions through the course of the conflict, such as its declaration of the 'Karnataka Cauvery Basin Irrigation Protection Ordinance 1991' as illegal decidedly shaped the direction of the dispute at various stages. The Supreme Court continues to be actively involved in the

issue, with the Special Leave Petitions (SLPs) filed by the various states still pending its consideration.

Several independent institutions have also come to be associated in different capacities. Particularly in Karnataka and Tamil Nadu, several linguistic groups have championed the causes of their respective states in the context of the Cauvery issue. In Karnataka, the Kannada Chaluvai Vatal Paksha, the Kannada Sene, the Karunada Sene, and the Karnataka Gadi Horata Samithi and, the Karnataka Rakshana Vedike as well as some Tamil groups, such as the Bangalore Tamil Federation have intensified the cultural significance of the conflict. The most prominent of these is the Karnataka Rakshana Vedike, a pro-Kannada organisation which became actively involved in the dispute, particularly immediately after the final award by the Tribunal, when they organised a successful bandh throughout Karnataka to protest the order. The association of these organisations with the cause lent the issue a distinctly linguistic tint, turning a conflict about a

scarce shared resource into a regional dispute with linguistic undertones and making conciliation even more elusive. In Tamil Nadu, there were several similar associations to promote Tamil interest in the conflict. The Karnataka Tamils Federation as well as the Bangalore Tamil Sangam, Tamil groups based out of Karnataka, played a crucial role in seeking justice for the victims of the riots of 1991, following the interim award.

In Tamil Nadu and Karnataka, several academics have studied the Cauvery issue and made assorted recommendations on the same. The Madras Institute of Development Studies (MIDS) as well as Bangalore's National Institute of Advanced Studies (NIAS) have provided various platforms for dialogue and research on the subject. A particularly commendable initiative by Madras Institute of Development Studies is the institution of the Cauvery Family, a forum of intellectuals, agriculturists and representatives of other stakeholders to the Cauvery dispute which has done significant work on this issue.

OPTIONS

ATTEMPTED

During the considerable span of the Cauvery dispute, several efforts have been made by assorted parties to resolve the same. Early attempts came in the form of the Agreements of 1892 and 1924, which sought to employ a legal remedy to solve the dispute. However, when these agreements and their validity came to be contested, the peace held by them was broken.

Negotiations

Decades of negotiations after Independence between all four states involved failed to establish a consensus. The institution of the CFFC in 1972 and its subsequent report in 1973 saw the states agree on certain technical facts associated with the dispute but made little progress towards finding an acceptable overall solution. Through the remainder of the 1970s as well as the 1980s, multiple rounds of talks between the governments of the various states involved and the centre were, again, unsuccessful in arriving at an agreeable means of sharing the waters.

Institution of a Tribunal

The establishment of the Cauvery Water Disputes Tribunal in 1991, followed by its interim order in 1991 and its final verdict in 2007 made some tangible steps towards the resolution of the conflict. However, the verdict cannot be said to have solved the problem in its entirety. With Karnataka, Tamil Nadu and Kerala filing Special Leave Petitions before the Supreme Court contesting the verdict, it is more than likely that the Tribunal's efforts are not sufficient to lay the issue to rest. Further, the question of enforcement of the verdict remains – the Tribunal has ceased to exist after the announcement of the verdict and never held powers of implementation and punishment for contempt to begin with. While the Inter-State Water Disputes Act, 1956 provides that “the decision of the Tribunal, after its *publication in the Official Gazette by the Central Government ... shall have the same force as an order or decree of the Supreme Court,*” the SLP, which remains pending in the Supreme Court, has stalled the implementation of the verdict thus far.

Civil-Society Initiatives

Aside from the aforementioned legal remedies, several alternative routes have been employed in a bid to reconcile the issue. Of these, a particularly commendable civil society initiative is the Cauvery Family, which, since 2003, has striven to provide a platform for an amicable solution to the dispute. The Cauvery Family has made remarkable progress in bringing together farmers from Karnataka and Tamil Nadu and eliminating hostilities between the two, as well as in employing academics to work towards arriving at an optimal water sharing solution by de-politicising the issue and bringing the focus back to what is of paramount importance – the livelihood of the farmers of the basin. Through constant dialogue in an atmosphere of camaraderie, they have eliminated the cloud of regional chauvinism that so adversely affected political negotiations on the issue. However, the impact of its efforts has not been sufficient to come even close to arriving at a permanent solution to the problem, particularly given its lack of executive jurisdiction or official powers of implementation.

PROPOSED

In addition to the various attempted means of conflict resolution, numerous

measures that haven't, as yet, been implemented have been recommended. With the luxury of hindsight, several suggestions have been made on potential alterations to the verdict as well as entirely alternative means of dispute settlement.

S. Guhan, an academic who worked extensively on the Cauvery issue, was a major advocate for a conciliatory solution to the issue as he believed that only continued goodwill between the states would solve the problem in a sustainable manner. To this end, he recommended that the states involved augment by reducing waste and harnessing supplementary sources for irrigation, conserve availability in the catchment, and institute programmes for the economic and efficient use of available waters.

Further, as the lower riparian, he advised that Tamil Nadu undertake several measures including modernisation of the irrigation system in the old delta to effect economies and efficiency in water use, on-farm water management practices for the same purpose, greater use of groundwater and its conjunctive use with surface water, conservation of rain waters going to waste, drainage improvements in the tail-end of the delta as well as suitable changes in cropping patterns.

A widely espoused means of alternative resolution, advocated by Guhan, the

Cauvery Family and several authorities on the subject, is the employment of more scientific cropping patterns in the basin to optimise the utilisation of available water. Enforcement of this method might trample upon farmers' freedom over their crop and centuries-old practices, but could exponentially reduce the water requirements of the riparian states. Another recommended solution advocated the re-allocation of waters

explicitly taking into consideration the availability of ground waters as a more fair and just means of appropriation, particularly given that one riparian state, Tamil Nadu, has considerably more access to utilizable ground water than the rest. These two solutions, if implemented, could considerably reduce the demands on the Cauvery for her waters, significantly easing the conflict between the states.

(APPENDIX I)

The Madras-Mysore Agreement of 1892

RULES DEFINING THE LIMITS WITHIN WHICH NO NEW IRRIGATION WORKS ARE TO BE CONSTRUCTED BY THE MYSORE STATE WITHOUT PREVIOUS REFERENCE TO THE MADRAS GOVERNMENT.

I In these rules –

- (1) “New Irrigation Reservoirs” shall mean and include such irrigation reservoirs or tanks as have not before existed, or, having once existed, have been abandoned and been in disuse for more than 30 years past.
- (2) A “New Irrigation Reservoir” fed by an anicut across a stream shall be regarded as a “New Irrigation Reservoir across” that stream.
- (3) “Repair of Irrigation Reservoirs” shall include (a) increase of the level of waste weirs and other improvements of existing irrigation reservoirs or tanks, provided that either the quantity of water to be impounded, or the area previously irrigated, is not more than the quantity previously impounded, or the area previously irrigated by them; and (b) the

substitution of a new irrigation reservoir for and in supersession of an existing irrigation reservoir but in a different situation or for and in supersession of a group of existing irrigation reservoirs provided that the new work either impounds not more than the total quantity of water previously impounded by the superseded works, or irrigates not more than the total area previously irrigated by the superseded works.

- (4) Any increase of capacity other than what falls under “Repair of Irrigation Reservoirs” as defined above shall be regarded as a “New Irrigation Reservoir”.

II The Mysore Government shall not, without the previous consent of the Madras Government, or before a decision under rule IV below, build (a) any “New Irrigation Reservoirs” across any part of the fifteen main rivers named in the appended Schedule A, or across any stream named in Schedule B below the point specified in column (5) of the said Schedule B, or in any drainage area

specified in the said Schedule B, or (b) any “New anicut” across the streams of Schedule A, Nos. 4 to 9 and 14 and 15, or across any of the streams of Schedule B, or across the following streams of Schedule A, lower than the points specified hereunder:

Across 1.

Tungabhadra - lower than the road crossing at Honhalli;

Across 10.

Cauvery - lower than the Ramaswami Anicut; and

Across 13.

Kabani - lower than the Rampur anicut.

III When the Mysore Government desires to construct any “New Irrigation Reservoir” or any new anicut requiring the previous consent of the Madras Government under the last preceding rule, then full information regarding the proposed work shall be forwarded to the Madras Government and the consent of the Government shall be obtained previous to the actual commencement of work. The Madras Government shall be bound not to refuse such consent except for the protection of prescriptive right already acquired and actually existing, the existence, extent and nature of such right and the mode of exercising it

being in every case determined in accordance with the law on the subject of prescriptive right to use of water and in accordance with what is fair and reasonable under all the circumstances of each individual case.

IV Should there arise a difference of opinion between the Madras and Mysore Government in any case in which the consent of the former is applied for under the last preceding rule, the same shall be referred to the final decision either of arbitrators appointed by both Governments, or of the Government of India.

V The consent of the Madras Government is given to new irrigation reservoirs specified in the appended Schedule C, with the exception of the Srinivasasagara new reservoir, across the Pennar, the Ramasamudram new reservoir across the Chitravati, and the Venkatesasagara new reservoir across the Papaghni. Should, owing to omission of the Mysore Government to make or maintain these works in reasonably adequate standard of safety, irrigation works in Madras themselves in a condition of reasonably adequate safety, be damaged, the Mysore Government shall pay to the Madras Government

reasonable compensation for such damage.

As regards the three new reservoirs excepted above the admissibility of any compensation from Mysore to Madras on account of loss accruing to Madras irrigation works from diminution of supply of water caused by the construction of the said works, will be referred to the Government of India whose decision will be accepted as final, and should such compensation be decided to be

admissible, the decision of the Government of India as to the amount thereof will be accepted, after submission to them of the claims of Madras which would be preferred in full detail within a period of five years after the completion of said works.

VI The foregoing rules shall apply as far as may be to the Madras Government as regards streams flowing through British territory into Mysore.”

Schedule A

Main rivers	Remarks
1. Tungabhadra
2. Tunga	Tributary of Tungabhadra.
3. Bhadra	---Do---
4. Hagari or Vedavati	---Do---
5. Pennar or Northern Pinakini
6. Chitravati	Tributary of Pennar or Northern Pinakini
7. Papaghni	---Do---
8. Palar	---Do---
9. Pennar* or Southern Pinakini
10. Cauvery
11. Hemavathi	Tributary of the Cauvery.
12. Laxmanthirtha	---Do---
13. Kabini	---Do---
14. Honhole (or Suvernavathy)	---Do---
15. Yagachi, up to the Belur Bridge	Tributary of the Hemavathi.

*Known as the 'Ponniaar' in Madras (Statement of Case of Govt. of Tamil Nadu Vol;.II 14-15)

Agreement between the Mysore and Madras Governments in regard to the construction of a dam and reservoir at Krishnarajasagar - 18th February 1924

Agreement

1. WHEREAS by an agreement, dated 18th February 1892, commonly known and cited as the 1892 agreement, entered into between the Government of His Highness the Maharaja of Mysore hereinafter referred to as the Mysore Government and the Government of Madras, hereinafter referred to as the Madras Government, certain rules and schedules, defining the limits within which the new irrigation works are to be constructed by the Mysore Government without previous reference to the Madras Government were framed and agreed to; and
2. WHEREAS under clause III of the said agreement the Mysore Government asked for the consent of the Madras Government to the construction of a dam and a reservoir across and on the river Cauvery at Kannambadi now known as the Krishnarajasagar dam and reservoir; and
3. WHEREAS dispute arose as to the terms under which the Mysore Government were to construct the dam in the manner and form proposed by them; and
4. WHEREAS such dispute was referred to the arbitration of Sir H.D. Griffin who gave an award in the year 1914 as to the terms and conditions under which the Madras Government should consent to the construction of the said dam and reservoir; and
5. WHEREAS the Madras Government, after the said award of the said arbitration was ratified by the Government of India, appealed to the Secretary of State for India who re-opened the question; and
6. WHEREAS hereupon the Mysore Government and the Madras Government with a view to an amicable settlement of the dispute entered into negotiations with each other; and
7. WHEREAS the result of such negotiations, certain Rules of

Regulation of the Krishnarajasagara reservoir were framed and agreed to by the Chief Engineers of the Mysore and Madras Governments on the 26th day of July of the year 1921, such Rules of Regulations forming Annexure I to this agreement; and

8. WHEREAS thereafter the technical officers of two Governments have met in conference and examined the question of irrigation in their respective territories with a view to reaching an amicable arrangement; and
9. WHEREAS the result of such examination and conference by the technical officers of the two Governments, certain points with respect to such extension were agreed to respectively by the Chief Engineer for Irrigation, Madras, and the Special Officer, Krishnarajasagara Works at Bangalore, on the 14th day of September 1923, such points forming Annexure III to this agreement.
10. NOW THESE PRESENTS witness that the Mysore Government and the Madras Government do hereby agree and bind themselves, their successors and representatives as follows:-
 - i) The Mysore Government shall be entitled to construct and the

Madras Government do hereby assent under clause III of the 1892 agreement to the Mysore Government constructing a dam and a reservoir across and on the river Cauvery at Kannambadi, now known as the Krishnarajasagara, such dam and reservoir to be of a storage capacity of not higher than 112 feet above the sill of the undersluices now in existence corresponding to 124 feet above bed of the river before construction of the dam and to be of the effective capacity of 44,827 m.c. feet, measured from the sill of the irrigation sluices constructed at 60 feet level above the bed of the river up to the maximum height of the 124 feet above the bed of the river; the level of the bed of the river before the construction of the reservoir being taken as 12 feet below the sill level of the existing under-sluices; and such dam and reservoir to be in all respects as described in schedule forming Annexure II to this agreement.

- ii) The Mysore Government on their part hereby agree to

regulate the discharge through and from the said reservoir strictly in accordance with the Rules of Regulation set forth in the Annexure I, which Rules of Regulation shall be and form part of this agreement.

- iii) The Mysore Government hereby agree to furnish to the Madras Government within two years from the date of the present agreement dimensioned plans of anicuts and sluices or open heads at the off takes of all existing irrigation channels having their source in the rivers Cauvery, Lakhmanathirtha and Hemavathi, showing thereon in a distinctive colour all alterations that have been made subsequent to the year 1910, and further to furnish maps similarly showing the location of the areas irrigated by the said channels prior to or in the year 1910.
- iv) The Mysore Government on their part shall be at liberty to carry out future extensions of irrigation in Mysore under the Cauvery and its tributaries to an extent now fixed at 110,000 acres. This extent of new irrigation of 110,000 acres shall

be in addition to and irrespective of the extent of irrigation permissible under the Rules of Regulation forming Annexure I to this agreement, viz., 125,000 acres plus the extension permissible under each of the existing channels to the extent of one-third of the area actually irrigated under such channel in or prior to 1910.

- v) The Madras Government on their part agree to limit the new area of irrigation under their Cauvery Mettur Project to 301,000 acres, and the capacity of the new reservoir at Mettur, above the lowest irrigation sluice, to ninety-three thousand five hundred million cubic feet.

Provided that, should scouring sluices be constructed in the dam at a lower level than the irrigation sluice, the dates on which such scouring sluices are opened shall be communicated to the Mysore Government.

- vi) The Mysore Government and the Madras Government agree with reference to the provisions of clauses (iv) and (v) preceding, that each

Government shall arrange to supply the other as soon after the close of each official or calendar year, as may be convenient, with returns of the areas newly brought under irrigation, and with the average monthly discharges at the main canal heads, as soon after the close of each months as may be convenient.

- vii) The Mysore Government on their part agree that extension of irrigation in Mysore as specified in clause (iv) above shall be carried out only by means of reservoirs constructed on the Cauvery and its tributaries mentioned in Schedule A of the 1892 agreement. Such reservoirs may be of an effective capacity of 45,000 million cubic feet in the aggregate and the impounding therein shall be so regulated as not to make any material diminution in supplies connoted by the gauges accepted in the Rules of Regulation for the Krishnarajasagara forming Annexure I to this agreement, it being understood that the rules for working such

reservoirs shall be so framed as to reduce to within 5 per cent any loss during any impounding period by the adoption of suitable proportion factors, impounding formula or such other means as may be settled at the time.

- viii) The Mysore Government further agree that full particulars and details of such reservoir schemes and of the impounding therein shall be furnished to the Madras Government to enable them to satisfy themselves that the conditions in clause (vii) above will be fulfilled. Should there arise any difference of opinion between the Madras and Mysore Governments as to whether the said conditions are fulfilled in regard to any such scheme or schemes, both the Madras and Mysore Governments agree that such difference shall be settled in the manner provided in clause (xv) below.
- ix) The Mysore Government and the Madras Government agree that the reserve storage for power generation purposes now provided in the

Krishnarajasagara may be utilized by the Mysore Government according to their convenience from any other reservoir hereafter to be constructed, and the storage thus released from the Krishnarajasagara may be utilized for new irrigation within the extent of 110,000 acres provided for in clause (iv) above.

- x) Should the Mysore Government so decide to release the reserve storage for power generation purposes from the Krishnarajasagara, the working tables for the new reservoir from which the power water will then be utilized shall be framed after taking into consideration the conditions specified in clause (vii) above and the altered conditions of irrigation under the Krishnarajasagara.
- xi) The Mysore Government and the Madras Government further agree that the limitations and arrangements embodied in clauses (iv) to (viii) supra shall, at the expiry of fifty years from the date of the execution of these presents, be open to reconsideration in the light of the experience gained and of an

examination of the possibilities of the further extension of irrigation within the territories of the respective Governments and to such modifications and additions as may be mutually agreed upon as the result of such reconsideration.

- xii) The Madras Government and the Mysore Government further agree that the limits of extension of irrigation specified in clauses (iv) and (v) above shall not preclude extensions of irrigation effected solely by improvement of duty, without any increase of the quantity of water used.
- xiii) Nothing herein agreed to or contained shall be deemed to qualify or limit in any manner the operation of the 1892 agreement in regard to matters other than those to which this agreement relates or to affect the rights of the Mysore Government to construct new irrigation works on the tributaries of the Cauvery in Mysore not included in Schedule A of the 1892 agreement.
- xiv) The Madras Government shall be at liberty to construct new irrigation works on the

tributaries of the Cauvery in Madras and, should the Madras Government construct, on the Bhavani, Amaravathy or Noyyil rivers in Madras, any new storage reservoir, the Mysore Government shall be at liberty to construct as an off-set, a storage reservoir, in addition to those referred to in clause (vii) of this agreement on one of the tributaries of the Cauvery in Mysore, of a capacity not exceeding 60 per cent of the new reservoir in Madras.

Provided that the impounding in such reservoirs shall not diminish or affect in any way the supplies to which the Madras Government and the Mysore Government

respectively are entitled under this agreement, or the division of surplus water which, it is anticipated will be available for division on the termination of this agreement as provided in clause (xi).

- xv) The Madras Government and the Mysore Government hereby agree that, if at any time there should arise any dispute between the Madras Government and the Mysore Government touching the interpretation or operation or carrying out of this agreement, such dispute shall be referred for settlement to arbitration, or if the parties so agree shall be submitted to the Government of India.

18th February, 1924
Madras

18th February 1924

P. HAWKINS,
Secretary to the Government,
Public Works Department,

A.R. BANERJI
Dewan of Mysore

Cauvery Water Disputes Tribunal

Final Order

The Tribunal hereby passes, in conclusion the following order:

Clause-I: This order shall come into operation on the date of the publication of the decision of this Tribunal in the official gazette under Section 6 of the Inter- State Water Disputes Act, 1956 as amended from time to time.

Clause-II: Agreements of the years 1892 and 1924 -

The Agreements of the years 1892 and 1924 which were executed between the then Governments of Mysore and Madras cannot be held to be invalid, specially after a lapse of about more than 110 and 80 years respectively. Before the execution of the two agreements, there was full consultation between the then Governments of Madras and Mysore. However, the agreement of 1924 provides for review of some of the clauses after 1974. Accordingly, we have reviewed and re-examined various provisions of the agreement on the principles of just and equitable apportionment.

Clause-III: This order shall supersede -

- i) The agreement of 1892 between the then Government of Madras and the Government of Mysore so far as it related to the Cauvery river system.
- ii) The agreement of 1924 between the then Government of Madras and the Government of Mysore so far as it related to the Cauvery river system.

Clause-IV: The Tribunal hereby determines that the utilisable quantum of waters of the Cauvery at Lower Coleroon Anicut site on the basis of 50% dependability to be 740 thousand million cubic feet-TMC (20,954 M.cu.m.).

Clause-V: The Tribunal hereby orders that the waters of the river Cauvery be allocated in three States of Kerala, Karnataka and Tamil Nadu and U.T. of Pondicherry for their beneficial uses as mentioned hereunder:

i) The State of Kerala	30 TMC
ii) The State of Karnataka	270 TMC
iii) The State of Tamil Nadu	419 TMC
iv) U.T. of Pondicherry	7 TMC
	726 TMC

In addition, we reserve some quantity of water for (i) environmental protection and (ii) inevitable escapages into the sea as under:

i) Quantity reserved for environmental protection	10 TMC
ii) Quantity determined for inevitable escapages into the sea	4 TMC
	<hr/>
	14 TMC
Total (726 + 14)	740 TMC

Clause-VI: The State of Kerala has been allocated a total share of 30 TMC, the distribution of which in different tributary basins is as under:

i) Kabini sub-basin	21TMC
ii) Bhavani sub-basin	6 TMC
iii) Pambar sub-basin	3 TMC

Clause-VII: In case the yield of Cauvery basin is less in a distress year, the allocated shares shall be proportionately reduced among the States of Kerala, Karnataka, Tamil Nadu and Union Territory of Pondicherry.

Clause-VIII: The following inter-State contact points are identified for monitoring the water deliveries:

- i) Between Kerala and Karnataka:
Kabini reservoir site

- ii) Between Kerala and Tamil Nadu

- a) For Bhavani sub-basin:

Chavadiyoor G.D. Site

It is reported that Chavadiyoor G.D. Site was being earlier operated by the State of Kerala which could be revived for inter-State observations.

- b) For Pambar sub-basin:

Amaravathy reservoir site

- iii) Between Karnataka and Tamil Nadu:
Billigundulu G.D. site/any other site on common border

- iv) Between Tamil Nadu and Pondicherry :

Seven contact points as already in operation

Clause-IX: Since the major shareholders in the Cauvery waters are the States of Karnataka and Tamil Nadu, we order the tentative monthly deliveries during a normal year to be made available by the State of Karnataka at the inter-State contact point presently identified as Billigundulu gauge and discharge station located on the common border as under:-

Month	TMC	Month	TMC
June	10	December	8
July	34	January	3
August	50	February	2.5
September	40	March	2.5
October	22	April	2.5
November	15	May	2.5
		<hr/>	
		192 TMC	

The above quantum of 192 TMC of water comprises of 182 TMC from the allocated share of Tamil Nadu and 10TMC of water allocated for environmental purposes. The above monthly releases shall be broken in 10 daily intervals by the Regulatory Authority. The Authority shall properly monitor the working of monthly schedule with the help of the concerned States and Central Water Commission for a period of five years and if any modification/adjustment is needed in the schedule thereafter, it may be worked out in consultation with the party States and help of Central Water Commission for future adoption without changing the annual allocation amongst the parties.

Clause –X: The available utilisable waters during a water year will include the waters carried over from the previous water year as assessed on the 1st of June on the basis of stored waters available on that date in all the reservoirs with effective storage capacity of 3 TMC and above.

Clause-XI: Any upper riparian State shall not take any action so as to affect the scheduled deliveries of water to the lower riparian States. However, the States concerned can by mutual agreement and in consultation with the Regulatory Authority make any amendment in the pattern of water deliveries.

Clause-XII: The use of underground waters by any riparian State and U.T. of Pondicherry shall not be reckoned as use of the water of the river Cauvery. The above declaration shall not in any way alter the rights, if any, under the law for the time being in force, of any private individuals, bodies or authorities.

Clause-XIII: The States of Karnataka and Tamil Nadu brought to our notice that a few hydro-power projects in the common reach boundary are being negotiated with the National Hydro-Power Corporation (NHPC). In this connection, we have only to observe that whenever any such hydro-power project is constructed and Cauvery waters are stored in the reservoir, the pattern of downstream releases should be consistent with our order so that the irrigation requirements are not jeopardized.

Clause-XIV: Use of water shall be measured by the extent of its depletion of the waters of the river Cauvery including its tributaries in any manner whatsoever; the depletion would also include the evaporation losses from the reservoirs. The storage in any reservoir across any stream of the Cauvery river system except the annual evaporation losses shall form part of the available water. The water diverted from any

reservoir by a State for its own use during any water year shall be reckoned as use by that State in that water year. The measurement for domestic and municipal water supply, as also the industrial use shall be made in the manner indicated below:-

Use	Measurement
Domestic and municipal Water supply	By 20 per cent of the quantity of water diverted or lifted from the river or any of its tributaries or from any reservoir, storage or canal.
Industrial use	By 2.5 per cent of the quantity of water diverted or lifted from the river or any of its tributaries or from any reservoir, storage or canal.

Clause-XV: If any riparian State or U.T. of Pondicherry is not able to make use of any portion of its allocated share during any month in a particular water year and requests for its storage in the designated reservoirs, it shall be at liberty to make use of its unutilized share in any other subsequent month during the same water year provided this arrangement is approved by the Implementing Authority.

Clause-XVI: Inability of any State to make use of some portion of the water allocated to it during any water year shall not constitute forfeiture or abandonment of its share of water in any subsequent water year nor shall it increase the share of other State in the subsequent year if such State has used that water.

Clause-XVII: In addition, note shall be taken of all such orders, directions, recommendations, suggestions etc, which have been detailed earlier in different chapters/volumes of the report with decision for appropriate action.

Clause-XVIII: Nothing in the order of this Tribunal shall impair the right or power or authority of any State to regulate within its boundaries the use of water, or to enjoy the benefit of waters within that State in a manner not inconsistent with the order of this Tribunal.

Clause-XIX: In this order,

- a) "Normal year" shall mean a year in which the total yield of the Cauvery basin is 740 TMC.
- b) Use of the water of the river Cauvery by any person or entity of any nature whatsoever, within the territories of a State shall be reckoned as use by that State.

- (c) The expression “water year” shall mean the year commencing on 1st June and ending on 31st May.
- d) The “irrigation season” shall mean the season commencing on 1st June and ending on 31st January of the next year.
- e) The expression “Cauvery river” includes the main stream of the Cauvery river, all its tributaries and all other streams contributing water directly or indirectly to the Cauvery river.
- f) The expression “TMC” means thousand million cubic feet of water.

Clause-XX: Nothing contained herein shall prevent the alteration, amendment or modification of all or any of the foregoing clauses by agreement between the parties.

Clause-XXI: The State Governments of Kerala, Karnataka, Tamil Nadu and Union Territory of Pondicherry shall bear the expenses of the Tribunal in the ratio of 15:40:40:5. However, these parties shall bear their own costs before this Tribunal.

New Delhi
5th February 2007

Sd/-
Sudhir Narain J.
MEMBER

Sd/-
N. S. Rao J.
MEMBER

Sd/-
N. P. Singh J.
CHAIRMAN

BIBLIOGRAPHY

- A correspondent. 1987. From Deep Ganga to Shallow Waters of Cauvery: Seventh South Indian History Congress. *Economic and Political Weekly* 22(8): 310-311.
- Abraham, P. 2002. Notes on Ambedkar's Water Resources Policies. *Economic and Political Weekly* 37(48): 4772-4774.
- Asian Development Bank. 2007. *Country Profile - India. Water Knowledge Center Statistics*.
- Benjamin, N. 1971. Cauvery waters dispute. *Economic and Political Weekly* 6(34): 1794-1795.
- Chitale, M.A. 1992. Water Resources Management in India: Achievements and Perspectives. In Guy Le Moigne et al (eds.), *Country Experiences with Water Resources Management: Economic, Institutional, Technological and Environmental Issues*. World Bank Technical Paper Number 175. Washington, DC: The World Bank.
- Chandrashekar, B.K., Guhan, S., Nanje Gowda, Manavalan, S., Nanjundaswamy, M.D., Ram, N. 1992. Joint Appeal on Cauvery. *Economic and Political Weekly* 27(10/11): 486.
- Cauvery Water Disputes Tribunal. 2007. *Report of the Cauvery Water Disputes Tribunal with the Decision* (5 volumes). New Delhi: Cauvery Water Disputes Tribunal.
- D'Souza, R. 2006. *Interstate disputes over Krishna waters: Law, science and imperialism*. New Delhi: Orient Longman.
- Economic and Political Weekly. 1998. Deep Waters. *Economic and Political Weekly* 33(31): 2043.
- Economic and Political Weekly. 2002. Politics of Wrong Sort. *Economic and Political Weekly* 37(41): 4172-4173.
- Government of India. 1988. *Report of the Commission on Centre-State Relations (Sarkaria Commission)*. Nasik: Government of India Press.
- Guhan, S. 1993. *The Cauvery dispute: Towards conciliation*. Madras: Frontline/Kasturi & Sons.
- Government of India. *Inter-State River Water Disputes Act 1956*.
- Government of Karnataka. 2002. *State Water Policy*. Bangalore: Water Resources Department.
- Haripriya Gundimedaa and Charles W. 2008. Interstate river conflicts: lessons from India and the US. *Water International* 33(4): 395-405.
- Iyer, R. R. 2003. Cauvery dispute: A dialogue between farmers. *Economic and Political Weekly* 38(24): 2350-2352.
- Iyer, R.R. 2002. The Cauvery tangle - what's the way out? *Frontline* 19(19): 14-27.
- Jeyaranjan, J. 1998. Cauvery Dispute: Changing Paradigms. *Economic and Political Weekly* 33(46): 2900-2901.

- Kosalram, S.A. 1973. Political Economy of Agriculture in Tamil Nadu. *Social Scientist* 1(12): 3-21.
- Shankar, S. and Komal Swaminathan. 2001. Water!: A Tamil Play by Komal Swaminathan. *Asian Theatre Journal* 18(2): 123-173.
- Kripa, A.P. 1992. Farmers' Movement in Karnataka. *Economic and Political Weekly* 27(23): 1182-1183.
- McCool, D. 1993 Intergovernmental conflict and Indian water rights: An assessment of negotiated settlements. *Publius* 23(1): 85-101.
- Panneerselvan, A.S., Rajesh, Y.P., and Sivanand, S. 1996. The Great Water Divide. *Outlook* July 24, available at <http://www.outlookindia.com/article.aspx?201802>
- Pani, N. 2009. Institutions that cannot manage change: A Gandhian perspective on the Cauvery dispute in South India. *Water Alternatives* 2(3): 315-327.
- Parvathi Menon and Subramanian, T.S. 2002. The Cauvery Tussle. *Frontline* 19(19): 14-27.
- Peter H. Gleick. 1993. Water and Conflict: Fresh Water Resources and International Security. *International Security* 18(1): 79-112.
- Public Works Department. 2003. *Cauvery water dispute demand No. 38. Policy Note 2002-2003*. Chennai: Public Works Department, Irrigation and Buildings, Government of Tamil Nadu.
- Ramana, M.V.V. 1992. *Inter-State River Water Disputes in India*, Madras: Orient Longman.
- Richards, A. and Singh, N. 1996. *Water and federalism: India's institutions governing inter-state river waters*. Santa Cruz: Department of Economics, University of California.
- Richards, A. and Singh, N. 2002. Inter-state water disputes in India: institutions and policies. *International Journal of Water Resources Development* 18(4): 611-625.
- University of Wisconsin-Madison. 2009. *Resource Disputes in South Asia: Water Scarcity and the Potential for Interstate Conflict*. Madison: Robert M. La Follette School of Public Affairs.
- Rogers, Peter. 1992. *Comprehensive Water Resource Management: A Concept Paper*. World Bank Policy Research Paper, WPS 879. Washington DC: The World Bank.
- Saleth, M.R., and Dinar, A. 2004. *The Institutional Economics of Water: A cross-country analysis of institutions and performance*. Washington DC: The World Bank.
- Sankaravadivelu, S. 1981. Sharing of Cauvery Waters: Experience of Thanjavur, *Economic and Political Weekly* 16(24): 1052.
- Sebastian, P.A. 1992. Cauvery Water Dispute and State Violence, *Economic and Political Weekly* 27(27): 1371-1372.
- Singh, Nirvikar, and David Wright. 1995. *Political Institutions, Identity and Conflict*

- in Developing Countries*. Santa Cruz: UCSC Working Paper.
- Singh, Radha. 2003. Interlinking of Rivers. *Economic and Political Weekly* 38(40): 4277-4278.
- Singh, Sandeep. 2007. The Cauvery Water Dispute. *Outlook*. February 6, available at <http://www.outlookindia.com/article.aspx?233817>
- Steen Folke. 1998. Conflicts over Water and Land in South Indian Agriculture: A Political Economy Perspective. *Economic and Political Weekly* 33(7): 341-349.
- Subramanian, T.S., 2003. Drought in the delta. *Frontline* 20(3).
- Subramanian, T.S. 2001. Waiting for Cauvery waters. *Frontline* 18(20).
- Upadhyay, V. 2002. Cauvery, courts and some larger questions: Elusive search for judicial reason. *Economic and Political Weekly* 37(35): 3583-3585.
- Wolf, A.T. 2000. Indigenous approaches to water conflict negotiations and implications for international waters. *International Negotiation* 5(2): 357-373.
- Wolf, A.T., Yoffe, S.B. and Giordano, M. 2003. International waters: Identifying basins at risk. *Water Policy* 5(11): 29-60.
- World Bank. 1995. *Water Resources Management*. Washington DC: The World Bank.
- Videh Upadhya. 2002. Cauvery, Courts and Some Larger Questions: Elusive Search for Judicial Reason. *Economic and Political Weekly* 37(35): 3583-3585.